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ADDRESS.

PROGRESS IN NEUROLOGY.

[ABSTRACT].

Chairman's Address before the Section on Neurology and Medical Jurisprudence at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY C. H. HUGHES, M.D.

ST. LOUIS.

Since last we met Neurology continues its onward arch, both in special discovery and in new and better ecepts and principles to guide the practice of our t.

During the past year the neurologic view of heart isturbance finds further confirmation from physio- gic sources in the following recent editorial refer- nce to the subject in the *Duetsche Wochenschrift:*

"A series of experiments at Buda Pest, producing tificial valvular insufficiency and dividing the vagi, ems to demonstrate that alterations in the nervous stem play an important part in preventing compen- tion in cases of valvular insufficiency."

Numerous clinical symptoms confirm this assump- on: arhythmia, etc., and Ott's statement that he und the nerve-cells degenerated in cases of "incom- ensation."

The direct neural and reflex nervous disorders of e heart constitute our chief concern in clinical med- ine, and damage to the vagus and upper abdominal iscera constitute the chief concern in the manage- ent of most cardiac affections, as the neurologist, e alienist, and even the general practitioner, en- unter them in practice.

The past year has witnessed more attention to psy- iatry on the part of neurologists and more attention pathologic work, as instance in illustration, the ide range of subjects treated in the State Hospitals ulletin of New York, a publication which bids fair become as famous for record of good work as the ell-known and unsurpassed West Riding Asylum eports of Great Britain.

A committee of the American Neurologic Associa- on has since our last meeting taken up and reported that body on the subject of the after-care of the sane.

In this connection, I note that Dr. Putman of Bos- on, in the Transactions of the Association of Ameri- an Physicians and in the *American Journal of edical Sciences*, offers new views of thyroidal dis- ases and Graves' disease, and Dr. J. T. Eskridge of enver also on some new uses of the thyroid extract. ur colleague of this city, who never rests from his bors, will soon be heard from in the *American System f Practical Medicine*, Vol. iv., now in press, and has eported in the September *Medical News*, an interest- g case of intradural spinal tumor, extending through e foramen magnum, compressing the extreme upper portion of the cord and almost completely destroying it at the third cervical segment.

Up to 1884, Drs. Goodell, Pallen and other gynecol- ogists advised the removal of the ovaries in all cases of insanity.

That same year, Dr. T. G. Thomas reported three cases of insanity following the operation and Dr. Putzel, of the New York City Lunatic Asylum, re- ported one hundred postmortems on insane women dying in that institution without a trace of disease of the ovaries.

Since our protest in 1882 (vide *Alienist and Neu- rologist*, January of that year) against the too reck- less surgical disposition then in vogue to "obliterate the neuropathic constitution by excising the ovaries" and the later protests of our neurologic colleagues, a sensible conservatism has supplanted reckless radi- calism concerning this operation which Spencer Wells, Matthews, Duncan and Martin of Berlin early discountenanced.

The entire editorial under the caption of "Unjusti- fiable Pelvic Operations" is a further evidence of the invasion of neurologic thought into the domain of general clinical medicine and surgery especially dur- ing the past year, and confirms our long ago expressed conviction (vide *Alienist and Neurologist*, 1880) that "Neurology is destined to reign paramount in medi- cal thought and practice."

Playfair, a professor of obstetric medicine in Kings College, contributes a chapter to Allbutt's English and American Gynecology, and Howard Kelly, our own countryman, in a late number of the *American Journal of Medical Sciences* opposes needless vagi- nal examinations and repeated local treatments of virgins from a psychical standpoint, as any neurolo- gist might.

The year since last we met therefore closes with the prevalent and advanced professional conviction, no longer confined to neurologists alone, that the neuropathic diathesis is not removable by the knife.

The influence of magnetic stress on physiologic action as a part of neurotherapy is worthy of note here, and on this subject our colleague, Prof. W. J. Herdman, in the *Bulletin of the Electro-Therapeuti- cal Laboratory of the University of Michigan*, in his capacity as director thereof, called attention to this subject, October, 1887, showing a 10 per cent. daily increase of eliminated urea on the days when subjects were in the magnetic field and upon animals, 20 per cent. of increase of nutrition for eight weeks while in the magnetic field, with a gradual decline after the twelfth week, showing tolerance. These results cor- respond with d'Arsonval's.

The surgical treatment of exophthalmic goiter was the subject of discussion at the French Surgical Con- gress, Paris, October, 1897. M. Faure of Paris re- ported having excised the cervical sympathetic in three cases. In the first of these, the superior cervi-

cal ganglion, along with five or six centimeters of the descending cord, was excised on both sides; after four months the exophthalmus had diminished, the goiter was less in size, the tachycardia and the general health had much improved. In the second, the entire sympathetic was resected on the right side (superior and inferior ganglion included), the superior ganglion and part of the cord only on the left side (because of the onset of alarming syncope); this patient improved still more markedly than the first. The third case died on the table after the entire sympathetic cord had been removed from the right side and the dissection on the left side was about to begin.

I introduce this record of so-called progress in surgical neurotherapy only to enter my protest against M. Faure's procedure. The improvement resulting in the first two recorded cases was not greater than would have come to the victims of his knife under the enforced rest and expectancy of the operation, and the spinal sympathetic system is not so useless in the human economy as to justify such radical destruction. This, the death on the table of the third case operated upon confirms.

I oppose this surgical procedure also because it is not only too destructive, but because it is not necessary, since exophthalmic goiter is almost invariably curable without the knife, at least it has been so in my hands under arseniated and phosphorated bromid and blood reconstructive treatment, with adequate nerve and brain rest and changed mental environment for the patient.

Something has been added to the therapy of neuropathy during the past year. The suspension treatment of tabes modified by recumbent knee-abdomen process and stretching of the sciatic nerve in sciatica, have passed from a great therapeutic expectation to their normal remedial limitations, and the much-heralded massage cure for tabetics is now on the tapis to find the sphere of legitimate limitation during the coming year, just as is the fate of all therapeutic fads.

Spermin (Poehl's *Deutsche Medicinische Wochenschrift*, Oct. 7, 1897) has been used with benefit by Wesbitzky of Professor Payoff's clinic in St. Petersburg. One of his cases, a soldier of sixty years of age, after ten injections, improved markedly in gait, posture, pains and perception (tactile and electric), etc. A second case not so typic, improved, but not so markedly.

Many new cures for epilepsy have been emblazoned on the therapeutic horizon during the past year, but none have yet eclipsed the Brown-Sequard formula.

Among the latest additions abroad to the therapy of this disease is an old remedy long used in this country before the advent of bromids, viz., adonis vernalis.[1]

The Johns Hopkins Hospital Reports, *The Journal of Psychology and Comparative Physiology* and the *Ophthalmologic Review* have contributed much during the past year to neurologic progress, and thyroid-therapy has been much extended in its usefulness in neurology, but my twenty minutes' limit will not permit me to dwell more at length on this subject.

The after-care of the insane, separate provision for epileptics, sequestration in hospital colonies, the increased attention given to the subject of asexualization for incurable and propagable and criminal neuropathic disorders, mark neurologic progress during the past year and give hope of the staying of that neuropathic plague which, like a silent pestilence, has followed and damaged civilization in its march since its emergence from barbarism.

The literature of psychiatry in this country has been enriched also by a book by Dr. Kellogg on "Mental Diseases," Dr. Chapin's "Compendium of Insanity," John C. Shaw's "Compendium of the Essentials of Nervous Diseases and Insanity," and S. V. Clevenger's treatise.

The advancing popular professional interest in psychiatry is further shown by the advent of Burr's "Primer of Psychiatry for Medical Men and Students and Trained Nurses," and the frequent contributions to the psychiatric aspects of the practice of medicine and surgery from sources of clinical experience where until lately these subjects were persistently ignored.

Physiologic and neurologic medicine during the past year has elicited unusual interest in the general medical societies of the country. Chas. E. Beaver, H. K. Lewis, Mills and Dana, of this country, have since last we met, brought out new books on the diseases of the nervous system.

The normal histology and pathology of the neuroglia (so-called) in relation especially to mental disease has been much elucidated during the past year by Dr. W. F. Robertson's report from the laboratory of the Scottish asylums in addition to the contributions of other American and European asylums, especially the Italian.

The neuron is a proved unit in physiologic and pathologic processes and Lewellys F. Barker has done more than any other American during the past year to prove it.

Foster and Sherington have embodied the discovery of Raymon Y. Cajal, and the later amplifications of this new light on the nerve-centers, in a new edition of Foster's text-book of physiology. Dercum has offered some captivating conceptions thereof which do not yet appear as misconceptions, and Van Geison continues his researches to the glory of American neurology.

I think it was Weidersheim who, in 1890, saw or thought he saw movement under the lens in an esophageal ganglion of a living animal. The mobility of the neuron was suggested by Rabe-Ruckard and Lapine and Duval.

Pierce Bailey's book, just from the press of D. Appleton & Co., on accident and injury in their relation to the nervous system, is the beginning of the surgical *rapprochement* between surgery and neurology which needs only to be supplemented by the forthcoming book from the neurologic side on the relationship of the nervous system to accidents and injuries, especially in its pathologic states, to make the union complete.

Neurology in its neuro-physiologic and neuro-pathologic aspect is destined to again unite all the specialties to that general medicine from which they have been prone to become too much dissevered. We have progressed already to the point that binds neurology more or less closely to all clinico-medical and clinico-surgical problems. The labors of neurology in the medical advance of the nineteenth century have not been in vain.

[1] Tekutiew, in Neurologisches Centralblatt, February, 1898.

Let us have a Department of Public Health!

ORIGINAL ARTICLES.

HEREDITARY SYPHILIS.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo, June 7-10, 1898.

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This topic is one of great practical interest. Fournier has wisely remarked that "nothing is so dangerous to its surroundings as a syphilitic infant,"[1] and it can not be without interest and value to discuss a subject so vitally connected with the welfare of many of those whom we are called upon to treat. The subject of hereditary syphilis is such a vast one that it is difficult to determine just what points to present; and each aspect is capable of development far beyond the proper limits of these introductory remarks.

First, it may be said that our consideration will be confined to *hereditary* syphilis, as distinguished from the broader subject of *infantile* syphilis; for the latter properly includes that acquired after birth in innumerable ways, such as in nursing, feeding, vaccination, circumcision, and many others, and even a primary sore acquired while passing through the mother's parts.

It may be here remarked that Fournier[2] has made the distinction between syphilis received with conception—that is, when one or both parents were diseased before procreation—and syphilis acquired by the fetus during intra-uterine life, from a subsequent infection of the mother. To the former alone he would apply the term "hereditary" syphilis. He claims that clinically there is a difference to be observed between the ante-conceptional syphilis and that acquired during intra-uterine life; the former is much more fatal to the fetus. In our study we shall not make this discrimination, but for practical purposes consider hereditary as synonymous with congenital syphilis.

Confining our attention then, to hereditary syphilis, or that existing at birth, there are many very interesting points which meet us at the threshold of our study and are not without practical bearing; some of these are still "moot points," and can not be absolutely determined; some lead us so far away from the center point—the syphilitic infant—that they need not be included. We will consider a few of those most vitally related to the subject.

The first question that arises is: How and when does transmission of the disease take place? When the mother is profoundly syphilitic in the early contagious period of the disease, it is not difficult to understand that her offspring should partake of the same. But what are the limitations of time or condition as to the date of the mother's infection? This is a hard question to answer absolutely. Many cases are on record when the mother has acquired the disease one, two, three, five, seven and even eight months after conception, with the result of either abortion or a syphilitic child; I am not aware of any reported cases where infection in the ninth month resulted in a diseased child, and generally it will escape an eighth month infection. Naturally, syphilis acquired before conception will be more likely to cause early abortion; that received later results in a diseased child.

[1] Fournier: Syphilis et Marriage, p. 211. Paris, 1880.
[2] Fournier: L'Heredité Syphilitique, Paris, 1891.

The more difficult question as the direct effect of only paternal transmission of syphilis can not be so easily and certainly dismissed. Many have doubted if the disease could be given by the father alone, without the intermediate infection of the mother, for certain reported experiments have seemed to indicate that the syphilitic virus is not communicated by means of the normal secretions—milk, saliva and semen. On the other hand, clinical evidence is accumulating that many children with syphilitic fathers are born with the disease, while the mothers are free from it—or appear to be free from it, on careful and prolonged medical observation. Some writers have attempted to explain away these cases by the well-known irregularities of syphilis, whereby, especially in women, its course may be peculiar, with prolonged absence of active symptoms. But still other clinical facts are being presented which go far to support the paternal transmission of the disease. Such are the occasional exceptions to Colles' law, in which the mother has been infected by her own child, and also instances of her acquiring a chancre otherwise (after having given birth to the syphilitic baby); both of these show that she has not the disease at the time, and so the infant's infection must have come from the father. Instances are also on record where a woman has borne syphilitic children to syphilitic men, and healthy children to healthy men. The paternal transmission of syphilis must, therefore, be accepted as a fact.

Syphilis is a powerful poison, producing various degrees of vital injury, even to death. It is not necessary to discuss here the nature of the virus, about which very little is positively known; most observers agree that it must be due to a toxin dependent on a micro-organism, which, however, has not as yet been isolated with certainty. The first effect of a full dose of the poison is inhibitive to the powers of procreation, and sterility is the fortunate result. With a slightly less intensity of the virus a non-viability of the product of conception results, and the fetus is thrown off early, even before the third month. With diminished virulence of the poison, or greater vitality of the parents, the life in the uterus will be prolonged, and abortion of a fully-formed and diseased child may take place at any period up to full term; but by far the larger number of miscarriages take place by or before the seventh month. With still less of the poison or greater vital resistance, the child may be born at full term, with or without external manifestations of the disease.

Even if brought into the world alive, the product of syphilitic conception has a relatively weak hold on life. This is instanced in the well-known statistics of the Moscow Hospital, where of 2000 syphilitic children born in eleven years, over 70 per cent. died. Fournier makes the mortality 28 per cent. from exclusive paternal heredity, 60 per cent. from maternal heredity, and 68.5 per cent. from a mixed heredity. Some figures are even more appalling. In Sigmund's wards in Vienna, out of 61 children born syphilitic, 59 died, 13 of them being still-births; of 47 living children only 4 survived more than three months. These figures, however, relate to hospital cases, and were taken some years ago, and it is believed that, with better knowledge of the disease and prophylactic treatment, a very much better showing could now be made; the results are also much better in private practice. But the facts stated serve to show the terrible virulence of the poi-

son when operating under adverse circumstances, or unchecked, and forcibly point to the necessity of the most extreme care in many directions in connection with syphilis and married life. As such may be enumerated: complete treatment before procreation is attempted; very thorough treatment up to the very hour of confinement, where syphilis exists; the very early recognition and vigorous treatment of the disease in the child; and, moreover, a very guarded prognosis in every direction, whenever there is any syphilitic element in connection with the case.

When the syphilitic child is born alive it may appear profoundly affected by the disease or may have almost or quite the appearance of a healthy child; when born diseased it scarcely survives even many days, death resulting from cachexia and gastro-intestinal trouble, largely dependent on visceral lesions. In the child dying thus early from inherited syphilis very great changes are found in the internal organs, which we have hardly time to mention here. The liver is enlarged and hard, due to fibro-plastic matter, whereby the capillaries are often obliterated, with compression of the cells of the acini and consequent cessation of the secretion of bile. Or there may be other alterations which need not detain us here. The spleen is found to be enormously enlarged, more than double in size, and hard, also with syphilitic endarteritis. The lungs are affected by much the same process, that is, with new formation of connective tissue surrounding the bronchioles and also the capillaries, interfering with circulation and expiration. By this means nodules form in the plugged and distended alveoli, which break down, forming fatty or caseous masses that may involve much of the lung. Almost all of the internal organs, and even the bones, have been found to be affected by more or less similar processes, so that the child born dead with syphilis, or dying soon after, is literally infected throughout with the poison, of which the skin symptoms, which may or may not be prominent, are only a single feature, and that not the most important, except for diagnostic purposes.

If now, the poison is not in excess, or if the vitality is very great, the infant may be born in an apparently healthy condition, and often there may seem to be reason for hope that it will escape the dreaded disease. The period at which syphilitic symptoms manifest themselves varies more or less in different cases, from a few hours or days to several months, the exact distal limit being as yet a "moot question." Most writers believe that one year is the outside possible limit at which the first symptoms may appear, while good observers also claim that it has only developed several years after birth. It is more than likely that in these cases there were earlier manifestations which were overlooked, even as is observed in acquired syphilis.

In the vast majority of instances the disease asserts itself soon after birth. Thus of 249 cases collected by Roger (*Union Méd.*, 1865) in 217 syphilis appeared before the end of the third month, and in only 32 did it appear later. In another series of 105 cases, 10 were attacked by the eighth day, 14 more by the fifteenth day, and 21 more by the thirtieth day, a total of 45 within the first month. Other analyses of cases show about the same result, so that in a large proportion of the cases the disease asserts itself between the third and sixth week after birth—in over three-quarters of the cases within the first three months of life. Beyond six months the proportion is exceedingly small, and yet it is never safe to give an absolutely favorable prognosis as to escape of the child even until after one year old. When the child is born apparently healthy, there is absolutely no means by which it can be determined whether it will or will not exhibit the disease later, and judgment must be suspended, but the case most carefully watched. Sometimes the skin lesions will be the first evidence of the disease, but more commonly symptoms referring to the nutrition or respiration will be the first to show themselves. The child is found to fail in appetite and strength, not to gain in weight, to be restless at night, and to be peevish and irritable. Soon the child's cry is noticed to be harsh and breathing difficult, and the well-known "snuffles" are noticed, with discharge from the nose; the nostrils become obstructed and it is hard for the child to breathe while nursing. The mouth soon becomes sore, the digestion begins to suffer and the child is really sick. With all this the body loses in weight, the skin becomes sallow and wrinkled, the features are drawn, and there is what is known as the "old man" expression. By this time there is usually more or less of an eruption, generally appearing first about the anus or nates, or about the mouth, and also on the palms and soles, which may become very general, and the syphilis is in its full bloom.

It must be stated, however, that the picture here detailed represents the fullest development of the disease, found in aggravated cases, in poor surroundings and unchecked by treatment, and certain points may be wanting in many cases. Under the best circumstances and with intelligent and proper care, all the symptoms may be very much modified, and the syphilitic child saved much of the injury which the poison is capable of inflicting, even as acquired syphilis in the child or adult may exhibit vastly different phases and degrees of danger.

The skin symptoms observed in hereditary syphilis are essentially similar to those seen in the acquired disease, and need not detain us long. Owing, however, to the delicate structure of the infant skin and its high vascularization, they exhibit some peculiarities. The erythematous eruption, or so-called syphilitic roseola, is that most commonly met with, in the form of oval or round pinkish macules, somewhat resembling measles, which may run together, forming reddened areas of considerable size; when they have lasted a while they more or less darken, giving rise to the so-called "coppery hue," but practically this feature is of much less significance than is popularly supposed. About the mouth this form of eruption sometimes lingers as brownish, scaly patches, and the palms and soles may desquamate.

This early erythematous stage may be rather indefinite and brief, and if the disease is unchecked it may pass into or be followed by another eruption of more solid form; this exhibits soft flat papules, large and small, of a dull red color tending to become coppery, and at first smooth on the surface; later there is more or less tendency to scaling, especially on the palms and soles. There is generally no special arrangement of these papules, although at a later period they may form in more or less circular or crescentic patches. Associated with this form of eruption there occur in parts which are moist what are known as condylomata lata or mucous papules. These are seen most characteristically about the anal and genital region, also about the mouth, and even between the fingers.

Owing to moisture and heat, the papules enlarge and become prominent, the surface softens, and may give off a glairy secretion which is exceedingly contagious. It is from this that many of the cases of innocent infection arise. When these papules occur in quantity about the corners of the mouth they give rise to a destruction of tissue which on healing leaves linear, radiating scars which often prove afterward to be a very valuable diagnostic sign. Within the mouth these mucous patches give off a free secretion which is the source of the greatest danger to those associated with the child.

Vesicular and pustular syphilides are comparatively rare in hereditary syphilis, but bullous eruptions are not very uncommon in severe cases. Bullæ are far more apt to appear on the hands and feet, but may be generalized, and may occur very early or at quite a late date in the disease. They always indicate a serious vital impairment, and when present at birth or developing very early, the case almost always ends fatally. Tubercular lesions are rare in the early history of hereditary syphilis, though they have been observed even in the sixth month. Generally they, together with gummatous lesions, belong to a much later cropping-out of the disease—even many years after birth. This brings us to consider briefly some of the late phenomena of hereditary syphilis.

Remembering what has been stated in regard to the very thorough and complete saturation of the system with the poison *in utero*, as evidenced by the many changes found in all the organs, it is not surprising that the hereditarily syphilitic child, if it escapes the lethal perils of early life, should exhibit changes in its various structures due to the action of the poison, and such is unquestionably the case. It is doubtful if one who has suffered much from the early symptoms of the disease, as indicating a severe infection, is ever so completely cured that there are not somewhere effects of the poison in the system. As the papular lesions about the mouth have left scars which remain for life, so infiltrations and alterations in other structures, when they disappear under treatment or spontaneously, leave marks or alterations of structure other than occur in the child whose development has been normal and not interfered with by such a malign poison. Prominent among these signs of past syphilis stand the changes in the second teeth, to which the name of Mr. Hutchinson of London has been so indissolubly attached. This change in the teeth does not always occur, but when found is certainly a valuable diagnostic aid. It is to be remembered that really only the upper central incisors present truly pathognomonic signs. When characteristically altered, more or less pegged, thickened, and with the curved, horizontal erosion at the end, they are not to be mistaken.

Associated with this change in the teeth there is a tendency to disease in the cornea which Hutchinson has also emphasized as peculiar to hereditary syphilis. This, usually occurring between the ages of three and twenty, results from a more or less diffuse keratitis, which gives rise to a peculiar hazy, ground-glass appearance of the cornea. Happily this condition seems to be getting more rare, owing to good treatment, so that personally I have not met with it for some time, although some years ago I saw it frequently. Ear disease, leading to deafness, also occurs from hereditary syphilis.

Changes in the bones are among the most common sequelæ of hereditary syphilis, and the flattened forehead with prominence at the sides will often be seen in these cases, in connection with the alterations in the teeth and eyes referred to. The long bones are also very frequently attacked, both in their extremities and shaft. The former, due to an osteochondritis, belongs to the earlier phases of the disease, and by interfering with the nutrition of the bone may produce serious lesions of its structure. Periostitis is commonly of later date, and may cause great deformity and pain; nodes from this cause may often be seen even many years after birth. Dactylitis syphilitica may occur in very young children, or even in early youth; in this there is a general thickening and enlargement of one or more of the phalanges, commonly the proximal, which runs a very slow course, and if injured may break down and ulcerate.

Cutaneous lesions may occur as late manifestations of hereditary syphilis and are mainly tubercular or gummatous. I have seen in a girl 23 years old, exhibiting characteristically pegged and notched teeth and with a well-marked history of hereditary syphilis, ulcerative gummatous disease on the arm, which had always been regarded as lupus, but which yielded rapidly and perfectly to proper specific treatment. Time and space do not permit us to go further into the late manifestations of the disease, such as affections of the nervous system, sexual system, heart, thymus, etc., but it is believed that as research continues it will be found that every portion of the economy is more or less impressed and affected by the profound alterations in nutrition which take place during the active period of the operation of the poison in hereditary syphilis.

We come now to the point of the further transmission of this disease to a succeeding generation. This is a subject which has been hotly discussed, and many have denied its possibility. It would be impossible here to present any of the arguments, but it may be stated that instances are multiplying by reliable observers where such a transmission to a third generation has taken place, and the writer believes that the weight of evidence is now such that it must be accepted as a fact, although such an occurrence is exceedingly rare.

Having now traced the progress of syphilis and its effects from the act of generation to the third generation of transmission, let us very briefly return to the child acutely affected with hereditary syphilis, and consider for a moment its relations to the world.

The already quoted saying of Fournier that "nothing is so dangerous to its surroundings as a syphilitic child," should always be borne in mind in connection with every case of hereditary syphilis. Hundreds and thousands of cases of *innocent syphilis* have had their origin in innocent babes, and too great care can hardly be exercised. Before the danger was fully recognized large epidemics of syphilis have swept through country towns in Europe, while in Russia many villages are said to be almost completely syphilized, entirely by "family syphilis." I have myself seen most lamentable instances, and not very recently had a grandmother with chancre within the nostril, followed by most severe syphilis with prolonged brain symptoms, who had received the infection from a syphilitic grandchild, which died of the disease.

It is questionable if a child of parents with recent syphilis should ever be wet-nursed. Even if the child exhibit no syphilitic phenomena, there is no certainty

that at some time mucous patches may not develop in the mouth which may infect the nurse. Danger could be avoided only by securing a nurse who was probably immunized by having had syphilis. There would be no danger of adding to the child's syphilis, for it has been pretty conclusively shown that syphilis can not be conveyed by the milk alone.

But even in the artificial feeding and ordinary family care of a syphilitic infant there is danger to those who have not had the disease. Multitudes of cases are on record where the disease has been thus communicated to those around by means of the feeding bottle, from tasting it. I have seen one case where this was believed to be the mode of infection. Time and space forbid our entering further this most interesting field of thought; sufficient to say, the most scrupulous care should be exercised in connection with the hereditarily syphilitic child, that in no way secretions from its lesions should affect others by mediate or immediate contact.

The subject of treatment in connection with hereditary syphilis has several divisions. First we may speak of prophylactic treatment.

The prophylactic treatment relates first, to guarding the prospective child against the dangers threatening from syphilis existing in one or both parents; and, second, to guarding others from the perils incident to the very contagious secretions given forth by the syphilitic child.

Time and space forbid discussion here of the very broad subject of marital syphilis, but it is one which should be very seriously considered by every medical man. The best observers all agree that procreation should not be allowed until after at least two years of active treatment for recent syphilis, and until at least six months have elapsed without treatment and without any manifestation of the disease. When the mother already has active syphilis and has become pregnant, her treatment should be pushed in the most vigorous manner possible. My preference in early syphilis, is for the treatment recommended by Hutchinson, of one-grain tablets of mercury and chalk, given every two hours, to the utmost tolerance of the drug. Eight to ten tablets may be taken daily, and in some cases it is often necessary to double some of the doses, and if necessary to administer opium to prevent purgation. Salivation should not be caused, and to prevent this great care to the mouth may be necessary, with the constant use of chlorate of potash or antiseptic solutions. If there should be intolerance of the stomach, mercurial inunctions should be used, or hypodermic injections of mercury. In somewhat later syphilis, the iodid of potash may also be needed, especially if placental disease is strongly suspected. This very active treatment should be pushed even up to the day of confinement, and as soon thereafter as possible.

Coming now to the prophylactic treatment of the offspring, it may be stated that the hereditarily syphilitic child should be regarded from the first as a dangerous element, even if in apparent good health, for it is never certain how soon syphilitic manifestations may exhibit themselves. It is to be remembered that the coryza may, and usually does, occur before the appearance of skin symptoms, and this secretion from the nasal passages and mouth is intensely virulent, and under proper conditions can give rise to a chancre when least expected. If at all possible, the syphilitic child should be nursed, and by its own mother, as this affords it the best hope of life and health, as compared with artificial feeding. It should, of course, never be given to a healthy wet-nurse, for, however healthy at the time, mucous lesions may develop at a later period in the mouth, with the almost certain result of a chancre of the breast in the nurse. History is full of records of thousands of instances where this has occurred, and many where veritable epidemics occurred, passing through many individuals by direct or indirect transmission.

If the baby is fed artificially, great care must be exercised that the nursing-bottle and articles connected with feeding, are kept scrupulously clean and away from the possible infection of others. The instances and methods by which brephotrophic syphilis has been communicated would greatly surprise one who has not become familiar with the subject. These can not even be enumerated here, but the list[3] amounts to between forty and fifty different categories, relating to almost every possible article of use or means of communication between the syphilitic child and those surrounding it.

The direct constitutional treatment of the hereditarily syphilitic child can be dismissed with few words. When there is strong reason to suspect that the child will develop the disease, a more or less mild treatment should be begun at birth, even before active symptoms manifest themselves, and be continued with judgment until the time of the feared explosion of the disease has passed. With any development of active symptoms the anti-syphilitic treatment should be pushed to all proper bounds.

For the active treatment of the disease no treatment has been devised which is better than inunction, as I believe is universally practiced. The blue ointment, diluted one-half with cold cream, is rubbed over the abdomen and loins, and smeared on a flannel band and worn constantly, fresh ointment being applied once or twice daily, according to the necessities of the case. Grey powder, given every few hours, is also a desirable plan in certain cases, and if there is evidence of intestinal disturbance, the bichlorid of mercury, half a grain to a grain to the pint of water, of which a teaspoonful may be given every few hours. Iodid of potassium is seldom wanted in the early stages.

The greatest care must also be given to the nutrition and general health, and every measure and remedy adopted which will heighten the vitality of the child. Iron is often called for in connection with the mercury, even in very young subjects. Later in the disease, and for the various sequelæ, the treatment is that indicated for acquired syphilis, and need not be detailed here. I may, however, mention that the syrup of the iodid of iron, even pushed in large doses, often yields brilliant results in rebellious cases.

The subject which we have tried to briefly cover is a very large one, and I feel that it has been but imperfectly presented. But if I shall have succeeded in calling attention to any features which may have been forgotten by some, and if a good discussion of the subject shall result, I will be more than satisfied.

4 East Thirty-Seventh Street.

[3] L. Duncan Bulkley: Syphilis in the Innocent, p. 19. New York, 1891.

Diagnosis of Sinus Thrombosis.—Voss calls attention to the fact that absence of vein sounds on the diseased side is an aid to the diagnosis, only noted in children to date.—*St. P. Med. Woch.*, October 8.

THE MEDICINAL TREATMENT OF CONGENITAL INFANTILE SYPHILIS.

Presented to the Section on Diseases of Children at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY CHARLES S. SHAW, M.D.

PITTSBURG, PA.

Syphilis is one of that small but happily increasing number of diseases in which special medication can be confidently expected to be followed by certain benefit: its prompt and intelligent treatment, therefore, is of more positive value than is the case in diseases in which the therapy is indefinite, and where medial agents, especially drugs, are of uncertain action. For clinical purposes the classic division of the disease into three stages is most convenient, though it seems to me the belief of Hutchinson, that syphilis is a true exanthem, running a definite and limited course, is the proper conception of the disease. Under this hypothesis the interval between the initial sore and the appearance of the constitutional symptoms is the period of incubation, the secondary stage is the time of active manifestation of the disease, and the third or tertiary stage is in truth the appearance of sequelæ, and is no more syphilis than nephritis is scarlet fever, or cardiac insufficiency acute rheumatism. There are many clinical facts corroborating this opinion, which though interesting, are foreign to my subject, and need not be mentioned.

In the treatment of syphilis, the secondary stage, the period of activity of the disease, is the time in which the best results are to be expected. Treatment during the primary stage, even early and complete excision of the initial lesion, has proven unsatisfactory, and, though gratifying results often follow proper medication in the tertiary stage, disappointment is by no means unusual. In the infant we have, as a rule, the secondary stage to treat; the initial lesion never; the tertiary stage rarely, because the child, owing to its slight resisting powers, usually dies of malnutrition before that stage is reached. It is this lack of resistance in the child that makes the treatment of infantile syphilis less uniformly successful than it is in the adult.

In making a prognosis in any case of infantile syphilis my experience has led me to consider as the most important factor, aside from the question of visceral lesions, the nutrition of the child, or rather its capacity to assimilate nourishment. We have all seen children with extensive mucous, cutaneous, and even osseous lesions, who, nursing well and digesting well, will steadily improve, while others, in whom the disease to all appearance is much less virulent, but in whom nutrition is defective, will die. From these observed facts the deduction as to the best method of treatment is obvious—that method which will least disturb nutrition.

The value of mercury in adult syphilis does not admit of question; but in infantile syphilis it is unique, it is the only drug. The iodids, arsenic and iron, so valuable in the treatment of the sequelæ in the adult, have little place with infants, because this stage is seldom reached. While it is true the child may need a tonic, it is a general need and not a specific one. Mercury in some form is a *sine qua non*. It is a question, therefore, of method of administration and choice of preparation.

Four ways of giving mercury are in vogue: by the mouth, by hypodermic injection, by vaporization, and by cutaneous inunction. The advantages of giving by the mouth are convenience, exactness of dose and control of effects, the disadvantages are slowness of action and the likelihood of digestive disturbances. The advantages of hypodermic injection are rapidity of action, certainty of action and exactness of dose; the disadvantages are pain, which is often severe, and the possibility of abscess. The advantages of the vapor bath are rapidity and certainty of action; the disadvantages are inconvenience, the need of special appliances, and inability to always control its action, severe mercurial ptyalism occasionally occurring. The advantages of inunction are certainty and rapidity of action and control of effect; the disadvantages are, uncleanliness, inconvenience and the possibility of cutaneous irritation.

The first and usual method—by the mouth—is contraindicated in infants by the digestive disturbances that so frequently follow the internal use of mercury in them. In adults this is not usually a serious matter, but in view of the supreme importance of preserving and increasing the nutrition of the syphilitic babe, and the danger of digestive derangements, this disadvantage amounts in many cases to an interdiction. The hypodermic method in infants is objectionable because of the pain and of the possible abscess that attend its use; if by any other method we can secure its virtues, certainty of action and control, we may dismiss it as inapplicable. The troublesomeness of the vapor bath is greater in infants than it is in adults, and the danger of mercurial poisoning is certainly not less; it may therefore be considered as of doubtful utility. There remains the fourth method—that of cutaneous inunction. The advantages—certainty and rapidity of action and control—are at least as evident in infants as in older patients, and the disadvantages of uncleanliness and inconvenience disappear altogether in infancy. The question of cleanliness is an individual one, and as the infant has no sense of personal cleanliness, the objection, so forcible with the adult, does not obtain. The question of convenience is also an individual one; the method is certainly troublesome to the adult, but it is not so to the infant nor its attendants. The liability to cutaneous irritation can be completely removed by a little care. In my opinion the evidence is clearly in favor of inunction.

The eligible preparations are the unguentum hydrargyrum of the pharmacopeia and the official 10 per cent. oleate of mercury. These should be diluted with an equal quantity of lanolin, lard or vaselin and they will rarely irritate the skin. The method of administration is very simple; spread about one dram of the ointment on a small piece of cotton or flannel cloth and lay it on the child's abdomen, covering it with the binder; or, more simple still, spread it on that edge of the binder that is first applied to the child's body; every second day bathe the child and reapply the ointment. The warmth of the child's body, the gentle friction produced by its movements, and the activity of its cutaneous circulation all contribute to the speedy absorption of the medicament. Under certain urgent conditions, when it is necessary to quickly and powerfully impress the system, it may be advisable to have temporary recourse to one of the other methods to aid the inunction, but the systematic, persistent treatment may be reduced to this aphorism: There are two ways of treating infantile

syphilis, a right way and a wrong way; the right way is by mercurial inunction, the wrong way is any other way.

THE DEBILITY OF ADOLESCENCE.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY LOUIS FAUGÈRES BISHOP, M.D.

NEW YORK CITY.

It has always been a puzzle to me to know just when the specialist on diseases of children gave up his case to the specialist on older people, and just when the specialist on older people gave up his patients to the specialist on old age. This suggests the existence of transition periods. There might well be study devoted to the period during which the child is passing from childhood to maturity. Of course, the child grows steadily from birth to manhood, but there is a period during the latter part of this time to which the name of adolescence is given, a period during which the youth is subject to particular departures from health.

During this period, when the active forces of early development have begun to wane and the solidification of maturity has not yet taken place, the organs are especially susceptible to damage from whatever causes may be active. Thus in early youth the poison of tobacco is badly borne, and functional derangement of the heart is a frequent result from doses of nicotine that at maturity have no such effect. In the same way the acute infectious diseases have a greater liability to involve the kidneys. The tendency to defective action of the blood-forming organs is the cause of the extreme frequency of simple anemia between the ages of 16 and 25. During this period also acute gastric attacks are frequent. Temporary nervous affections, such as hysteria and melancholia are met with in individuals, who during the rest of their life are free from these disorders. Headaches of a persistent and troublesome type, not traceable to any other cause than debility, constitute a troublesome condition. The importance of special attention to these symptoms at this period of life is that their true bearing shall be understood so that a just prognosis may lead to patient management and the final develment of the youth into a sound adult. It frequently happens that the debility of adolescence is most marked about the time the boy or the girl would pass from school to college. In some instances this breakdown of the vital forces is so marked that it is advisable to allow an interval in the educational course of, perhaps, a year, devoted to travel or an out-door occupation. Too frequently the boy goes to college and his health falls a victim to irregular hours and mild dissipations that his stronger classmates are easily able to bear. This condition, to which we have given a name, is more difficult to manage on account of its indefiniteness. If we can convict a patient of nephritis, or gastritis, or incipient tuberculosis, it is easy to obtain a hearing for our counsel, but to call it debility is not always enough for the layman.

Then there are certain cases, the care of which is incumbent upon physicians, that are not so easy to define as are particular diseases. One of these conditions is a certain laxness of fiber of the body as a whole, but which manifests itself more especially in certain directions. It is specially common in young persons who have grown rapidly in height and in bulk but whose organs have apparently not increased in power in a ratio proportionate to the size of the body. These young persons are prone to suffer from anemia, cardiac insufficiency, gastric disturbances and a mild neurasthenia. On account of their size and muscle they are tempted to take part in athletic contests, much to the injury of the poorly developed heart. They acquire by exercise enormous appetites, that when gratified overtax the powers of the stomach and cause dyspepsia. The bad heart action, the disturbed digestion, create a vicious combination when combined with anemia, and may give rise to disturbance of other organs. There may be albuminuria and even edema. This may or may not indicate a real nephritis. So we have the picture of a man, or rather a boy the size of a man, who has outspread in his physical growth the capacity of his organs, and suffers from a deficiency of the blood-making, the blood-circulating, and the food-digesting organs with an accompanying neurasthenia. The question of the management of these cases is a difficult one. Should such a constitution be hardened and developed through work, or should the organs simply be allowed a chance to increase in power by rest? Should the mind be taken out of itself by the forced application of school and college, or should it be diverted by travel or amusement? Then the question of the administration of drugs arises. It would seem that no specific rules are possible. Each case must be managed on its merits. The important beginning is to recognize the condition, and not to write the boy down as a dyspeptic, a case of cardiac disease proper, a case of nephritis, or even a neurasthenic, though any or all of these conditions may exist in their incipiency and be possible under bad management. In the average case it is better not to take radical measures, such as removal from college, but rather to protect the weak organs by preventing over-exertion in atheletic contests, over-study and depressing surroundings. The tendency to hypochondriasis is great, so that it is important that the boy should be treated as little as possible as an invalid.

The albuminuria of adolescence has recently attracted my attention, especially because of its observation in a particularly interesting case. This has led to the consideration of this organic debility observed quite frequently in boys and girls just previous to the period when they reach maturity. Thus often, a boy who during his entire early life has been well nourished and strong, during the period of rapid growth, becomes anemic and emaciated. With this there is an inability of the digestive organs to properly carry on their work. There is apt to be trouble with the eyes, headache, feebleness of the circulation, morbid nervous manifestations, and a general condition of debility. We can not say these cases are of dyspepsia, neurasthenia or anemia, because they are all three, and yet they are none of these. It would seem that rapid growth, under unfavorable conditions had for the time being exhausted the organs and produced debility. When this debility has been removed the suspicions of organic disease are likewise dissipated. Like acne, showing the inability of the sebaceous follicles to properly empty themselves, it will last until the tone of the whole system recovers from the strain of adolescence.

In the management of adolescence are to be considered the counter-claims of a system of hardening by exposure and hardship and a system of coddling

conserve bodily forces. It is indeed an important estion. The Spartan régime that develops only at can be developed under a rigorous education, d destroys what can not be perfectly developed, is t of tune with modern civilization.

On the other hand, there can be no doubt of the ality of the fiber that is developed in youth by a ere system of training. In educational institu- ns classification is the safeguard. The pupils ould be distributed in small groups so that the bition of each should be stimulated by a proper alry, but not annihilated by oppression. Here the ysician should insist that any who suffer from the bility of adolescence should be protected from e injury of an injudicious system of education. t the mental training, if possible, be deferred for a e while the child or youth is allowed to relapse re into a state of nature. Happy is it for such a tient if country life and country pursuits are avail- le. The administration of drugs will consist only the quite persistent use of cod liver oil and iron d the occasional stimulation of the functions of the imentary canal. The conditions of life are to be djusted so that a normal and healthy manhood may ally be reached by the youth whose adolescence s been characterized by this peculiar lack of vitality.

During this period of life young persons often suf- from what almost amounts to cruelty on the part their superiors, who do not appreciate that there is eal underlying debility, not only of actual physical durance, but of nervous power. I have no doubt at many of the robust older people, who tell us that en they were young they were threatened with con- mption, and were sent away for a year, were in the nds of some wise old practitioner, who appreciating ir condition, used a little justifiable exaggeration obtain obedience to his advice.

A great danger is that a boy of this character may ravate his condition by the use of tobacco, to ich he would be unusually susceptible on account the already feeble heart action. Can such a boy d a pleasant outdoor existence with moderate inter- ing occupation, removed from the worry and bur- n of school life, in course of a few years the heart, mach, kidneys and nerves will acquire development d efficiency equal to the bulk and demands of the stem at large, so that the patient may in every spect be a normal individual. These conditions are rth careful consideration because the danger of pposing wrongly that we have to deal with chronic anic disease is great. On the other hand, we must confound the symptoms of this condition with y similar manifestations due to, for instance, a real phritis following the exanthemata.

So it is important to recognize the general physical nditions incident to the several periods of life. ch has its special features. It is convenient and vantageous to separate medical work into divisions study. It is the privilege of the general practi- er to meet now with one group of students and with another. All workers in diseases of chil- n must of necessity be general practitioners in the dest sense, so that in this section a study of the sition period will not be out of place.

West Thirty-Sixth Street.

DISCUSSION.

Dr. SEAGLE of Minneapolis—We all see cases of those grow- too fast and those frequently who are pushed too fast, e whose muscular system has grown too fast for the inter- nal organs. The essayist confined it, I noticed, entirely to the masculine sex but it is perhaps as applicable to girls in many instances. Chlorosis is very frequent in this class of patients in our part of the country. The caution the essayist gives about pushing those children or branding them as indolent is very good.

Dr. R. B. GILBERT, Louisville—The patent nostrums we see advertised, which in many instances are composed of alcohol or opium in disguise, are frequently used. These cases are often treated too lightly by the family physician. The symptoms are too indefinite, so that the hasty answers he gets from the doctors he applies to, are unsatisfactory. Then it is he falls a victim to the patent medicines, to his great injury. It is a subject we should consider carefully and we should pay more attention to that class of adolescents, take them out of school, take them off cigarettes and tobacco, of course, and send them to the country. I remember a young man who began the study of medicine, against my advice, at 18 years of age. After a year he got into such a condition that he abandoned the practice of medicine and went to Colorado and hired himself out as a herder of sheep. He came back to our country a healthy and ruddy individual. Possibly the celebrated climate here had something to do with it, but I think it was more the rough and tumble life he led and the rough food he had to eat. At home he had been fed on all the delicacies the markets could afford. Give the boy encouragement, let him know he has the elements of health in him and put him out where he can get a move on him. It is not often the case that they get into the army, but in the volunteer service I remember several such individuals. One, a cousin of mine, was just that sort of an individual, and camp life, his mother thought, would be the death of him in a month. She sought his release but the officers would not relieve him. After six months he was rosy and fat on hard tack and bacon.

Dr. MCCONNEL—In my experience in all these cases there is a cause, and in my experience the cause has been in the stomach. These young men have not a so-called dyspepsia, but they have mal- or non-assimilation. While they have no appetite, they are fed on all the delicacies of the season, their appetite is pampered and as a consequence they eat more than they can digest. If their appetite is carefully cared for and if they are impressed that stuffing is not nourishing, they soon will get an appetite and assimilate the food. When a boy gets in this condition the first thing the physician tells the parents is to take the child out of school. Nothing flatters the parents more than to tell them that their children are studying too hard. Oh, they love to hear that! Nine times out of ten they are not studying at all. I tell you, gentlemen, it is not over-study: it it under-play. It is wrong and a great injury to these cases to take them out of school.

Dr. H. W. SCAIFE, Chicago—The last speaker but one gave us an instance of a boy who was over-growing and was sent out west and followed the occupation of a cowboy. That coincided with what I said, that they should have pure air and pure eating and should change their diet to a different line. He mentioned an instance where a youth grows too fast, the muscles outweighing the conditions of the brain. We know there are some people who keep on growing until the time that they die. Some plants we know will grow forever. The oak tree will grow a thousand years. The reason is that they have that in them which is trying to balance the formative power or the building up of the organism, and life is in no hurry to leave them. I believe that what has been said in the way of remarks on the second paper would apply very well to mine.

Dr. EDWIN ROSENTHAL, Philadelphia—The question of adolescence has been brought forcibly to my mind in the cases of young ladies suffering from chlorosis or rheumatism or chorea, and the only way we can cure them is to take them away entirely from their usual work and place them among the sav-

ages, and in that way you can build up the nervous system so you can cure them of the nervous diseases. If you take the half-grown boys who have ear-aches and who pay attention to their faces to press out the little comedones and imagine they are ill, it is just as important that they should be treated as if they were affected with typhoid fever. You will find each of these boys has a specific. They have a book in their pocket which tells all about the hundred and one things they have. It is true the stomach is the cause of a great deal of this disease, for if they get a little wind in the colon, away they go into hysteria. The only way you can cure them is to bring them down to nature, send them out to farms or out here or to the army. But with medicines the patients grow up to be invalids, the kinds the books in the drug-stores tell us about.

Dr. LOUIS FAUGÈRES BISHOP, New York City—I think the object of the paper has been fulfilled. I drew attention to this condition. I did not mean to neglect these girls by using "he" but I meant that to cover the whole race.

TETANY IN INFANCY; WITH A REPORT OF SIX CASES.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY JOHN LOVETT MORSE, A.M., M.D.

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BOSTON, MASS.

Very great differences of opinion exist with regard to what constitutes tetany, as well as to the frequency of its occurrence and its etiology and pathology.

It is generally accepted that the most characteristic symptom of tetany is muscular rigidity, this rigidity occurring as intermittent paroxysmal contractures. The duration and intensity of the contractures vary, in some cases being long and remittent, in others fleeting and occurring at long intervals. The extent of the contractures also varies within wide limits, the seat par excellence, however, being in the muscles of the arms, especially of the fore-arms. The positions assumed by the hands and feet during these contractures are very characteristic. The fingers are flexed at the metacarpo-phalangeal joints, while the phalanges are extended. The thumb is strongly adducted in the extended position. The wrist is acutely flexed and the hand turned to the ulnar side. The elbow- and shoulder-joints are not involved in the milder cases. The feet are strongly extended, sometimes in the position of pure equinus, but more often in that of equino-varus. The first phalanges of the toes are strongly flexed, the others extended. The knee- and hip-joints are usually free. Opisthotonos is not very uncommon in the severe cases. Associated with the contractures are other symptoms, some or all of which are present in every case. These are: Increased electric excitability of both nerve and muscle to faradism and galvanism, with changes in the qualitative reaction to galvanism. This is often known as Erb's symptom and is probably the most constant. Increased mechanical excitability of both nerve and muscle. Special examples of this are the occurrence of characteristic contractures as the result of pressure on the large nerve trunks and arteries, "Trousseau's symptom," and spasm of the facial muscles when the skin over the trunk of the facial nerve is irritated or the nerve is struck a sharp blow, "Chvostek's symptom" or the "facialis phenomenon." Laryngospasm. Convulsions. Sensory disturbances, including pain on motion and during spasms, as well as many oth impossible to determine in infants. Vasomotor trophic disturbances, the most characteristic be edema of the wrists and ankles. Fever, which is constant and intermittent. The intelligence is alw unimpaired, even during the paroxysmal contractu

All agree that the presence of the peculiar par ysmal contractures justifies the diagnosis of teta There is great difference of opinion, however, as whether the presence of one or more of the ot symptoms without contractures justifies the diagno It is to this condition that the term "latent tetan is applied. Even here, however, there is no consen of opinion, some apparently limiting the term to condition in which irritation of the muscle or ne brings on contractures which are otherwise abse while others consider the presence of even one sy tom as pathognomonic and sufficient for the diagno As a rule, those who recognize the existence of lat tetany consider it the same as tetany, differing fr the latter only in degree. If these symptoms are be considered as pathognomonic and sufficient for diagnosis of tetany, whether the characteristic c tractures are present or not, they should be alw present where there are contractures and should ne occur in other conditions. Trousseau's symptom the facial phenomenon are sometimes absent, and of only temporarily present when there are typic c tractures. Moreover, Trousseau's symptom is of met with in hysteria, while the facial phenomenon found in many other conditions, as epilepsy, hyste phthisis and neurasthenia. Laryngospasm is freque in tetany, but not constant, and is often seen in ch dren who have no other symptoms of tetany. C vulsions and disturbances of sensation, as well as va motor and trophic disturbances, occur in many ot diseases. It is evident, therefore, that these th symptoms—laryngospasm, Trousseau's symptom a the facial phenomenon—are not constant in ca which show the typic contractures of tetany, and t they occur in many conditions in which there is question of tetany. Hence they can not be cons ered as pathognomonic of tetany, and do not, eit singly or in combination, afford sufficient ground the diagnosis either of tetany or latent tetany. Th must be regarded merely as particular instances increased mechanical or reflex excitability which m be the result of a very great variety of causes a pathologic conditions. The only pathognomonic sym tom of tetany, therefore, is spontaneous, intermitt paroxysmal muscular contracture. The term "tetan should be applied only to those cases in which t symptom is present, and no cases of increased re excitability in which this symptom does not oc should be regarded as examples of the disease. T term "latent tetany," is therefore a misnomer a should be dropped.

ETIOLOGY.

Numerous theories as to the etiology of tetany ha been advanced, and have found vigorous defend and opponents. The question is still unsettled, ho ever, probably partly on account of the differences opinion as to what constitutes tetany, and partly account of the inherent difficulties of the subj The theory of the older authors that it is of rh matic origin has long been given up. The positi that it is merely a manifestation of hysteria must a be regarded as untenable. The theory that it is ce bral in origin was founded on an erroneous concepti

of the disease, and is no longer accepted. The theory that it is a variety of acute anterior poliomyelitis can not easily be set aside, however, as certain quite definite lesions have been found in the anterior horns. As the cases of tetany which do not die of some intercurrent disease nearly always recover, these lesions must, as a rule, be transitory. They may very probably be frequently due to the action of toxic substances in the circulation, the result of diseased conditions elsewhere.

The most ardent and extreme advocate of the rachitic theory is undoubtedly Kassowitz. His line of argument is somewhat as follows: Craniotabes is a lesion of rickets. Craniotabes may be represented only by meningeal hyperemia, and hence be incapable of demonstration. Laryngospasm is due to craniotabes. Laryngospasm is a symptom of rickets. Other symptoms of increased neuro-muscular excitability are seen in rickets. They are of the same nature as laryngospasm and hence due to the same cause. Laryngospasm and other nervous manifestations are symptoms of tetany; in fact, they are tetany. Hence tetany is a symptom of rickets.

There are many obvious objections to this reasoning. It is not proven that craniotabes is the cause of laryngospasm, or that meningeal hyperemia produces the same results as craniotabes. Moreover, laryngospasm occurs in tetany when there is no evidence of rickets, in rickets when there are no other evidences of tetany, and alone when there are no evidences of either tetany or rickets.

Although not agreeing with the extreme views of Kassowitz, most of the German and Austrian authorities have accepted the rachitic theory in a more or less modified form. Some of the arguments in favor of this view are, that almost all cases of tetany show evidences of rickets, that they are both more frequent in winter, and that they occur in children of the same age. Some of the arguments against it are, that very many cases of other diseases than tetany show evidences of rickets, that the symptoms of increased neuro-muscular excitability, with the exception of laryngospasm, are rare among rachitics, and that tetany is more likely to occur in mild than in severe cases of rickets. The fact that rickets is common all the year round, although much more so in the winter, while tetany very rarely occurs in the summer, would seem to point to some common cause for both conditions which is active only in the winter. This cause is most probably the indoor life of the winter, with its lack of sunlight and oxygen and its exposure to noxious vapors. These furnish the opportunity for the formation of respiratory toxins which may produce changes in the circulation that lead to malnutrition of various tissues with subsequent symptoms.

Several theories locating the origin of tetany in the gastro-intestinal canal have been advanced. These have received their main support from the French authorities. The dehydration and reflex theories need be mentioned only to be set aside. That of autointoxication, however, is worthy of careful consideration. The friends of this theory say that tetany is almost always associated with diarrhea or other digestive disturbances. They say that the reason that all children suffering from indigestion do not have tetany is that some peculiar chemic combination is necessary, or because their nervous system is insusceptible. When tetany occurs in infants who present no symptoms of indigestion, they assume that the nervous system is easily affected, or that this peculiar chemic combination may be produced without causing other symptoms. They also state that when the digestive disturbances are relieved the tetany ceases. They attribute the frequency of tetany in rachitis to the gastro-enteric disturbances of this disease. The opponents of this theory say that gastro-enteric disorders are very common and tetany very rare; that digestive disturbances are more common in summer and tetany in winter; and that the only basis for the assumption of peculiar susceptibility or special chemic combinations is in the imaginations of the originators.

The most recent, and perhaps the most plausible, theory assumes that there is no single pathologic cause for tetany, but that, like epilepsy, it may arise from many causes. Like epilepsy, too, it must be regarded merely as a nosologic entity, and not as a definite disease. In improper hygienic surroundings, in rickets, in gastro-intestinal disorders, in acute disease, and in various intoxications are present conditions capable of causing the formation of various toxic substances. The action of all these poisonous substances may show itself by a special modification, rather functional than organic, of the central or peripheral nervous system. The various lesions of the nervous system found in tetany are not inconsistent with this conception.

MORBID ANATOMY.

The lesions which have been found in the nervous system in tetany are very variable. Tonnellé, Blondeau, Grisolle, Trousseau and Bouchut have found hyperemia of various portions of the brain and cord and their meninges; Weiss, Bonome, Cervesato and Sarbo various degrees of poliomyelitis of the cervical enlargement; Stasse, Niemayer and Schultze peripheral neuritis; and Loos, Berger and others no lesions. The most characteristic lesions, however, are probably those in the cells of the anterior horns in the cervical enlargement. These vary in degree from hyperemia and swelling to atrophy and sclerosis, the severity of the process probably depending on the duration and intensity of the disease. It is probable that certain lesions in this region are present in all cases, but that in recent ones they are too superficial to be recognized. Whether they are primary here or secondary to an ascending neuritis is at present entirely undetermined. As they have not been found constantly, however, further verification is necessary before they can be accepted as the essential lesions of the disease. Nevertheless, they do correspond more closely to the symptoms of the disease than any other lesions which have been described, and seem at any rate to afford a fairly satisfactory explanation for them.

FREQUENCY.

The frequency of tetany must naturally depend on the definition of the disease which is accepted. If the presence of symptoms of increased neuro-muscular excitability is considered as evidence of latent tetany, and latent tetany is classed as tetany, the disease will be frequently encountered. If, however, only those cases in which the typic paroxysmal contractures are present are regarded as tetany it will be seen much less often. This difference in classification undoubtedly explains to a great extent the much greater frequency of the disease in Germany and Austria than in France and Italy. It does not

entirely account for the discrepancy, however, and there is probably but little doubt that tetany, even in the strict interpretation of the term, is much more common in the first-named countries. It is still less common in this country, being, indeed, something of a rarity. Griffith, in addition to five cases of his own, was able to find but seventy-two cases reported in American literature up to 1894, although he included in his list a number of cases of muscular spasm, which, strictly speaking can not be accepted as cases of tetany. In a careful review of American medical literature from Jan. 1, 1894, to Jan. 1, 1898, I am able to find but thirteen additional cases. They are, in brief, as follows:

1. Lewi: Nine months. Constant, typic spasm in hands. Arms and legs painful. One convulsion. Spasm became remittent, then ceased. Duration, three weeks. Neurotic family history. Rachitic. No craniotabes. No gastro-intestinal disturbances.

2. Lewi: Eight months. Typic, intermittent spasms in hands and feet, lasting hours or days. Hands and feet tender and painful. Increased electric reaction. Duration, six weeks. Recurrent attack two months later with death in convulsion. An older child had had disease. Rachitic. No craniotabes. Gastro-intestinal disturbance always. Constipation during attack.

3. Lewi: Eight months. Typic, continuous spasm in hands and feet. Hands and feet swollen, tender and painful. Increased electric reaction. Duration, two weeks. Rachitic. No craniotabes. Vomiting. Constipation.

4. Lewi: Thirteen months. Remittent spasm in hands and feet, most in hands. Hands and feet swollen, tender and painful. Laryngismus stridulus. Duration, two weeks. An older child had had disease. Markedly rachitic. No craniotabes. Vomiting. Constipation.

5. Crandall: Six months. Began with peculiar attacks of staring. In a month well-marked and typic paroxysms, involving neck and all extremities, lasting one and a half to two hours. Five to eight attacks in twenty-four hours. No laryngismus stridulus. Duration, eight weeks. Moderately rachitic. No craniotabes. Poor breast-feeding. Diarrhea, later constipation. Phimosis. Correction of phimosis had no effect. Complete recovery in eleven days after correction of diet and relief of constipation.

6. Crandall: Eleven months. Twelve to twenty-four attacks of laryngismus stridulus and convulsions in twenty-four hours. Duration, two minutes. Spasms fairly typic. Duration, three weeks. Markedly rachitic. No craniotabes. Breast and general diet. Vomiting. Alternate diarrhea and constipation. Recovery in two days after correction of diet and cathartic.

7. Preston: Three and a half years. Typic spasms in arms, less so in legs, lasting a few minutes; intervals of months or ten to fifteen in twenty-four hours. No pain. Trousseau's symptom present. Began at one year. Duration unknown.

8. Krauss: Six months. Typic paroxysms; continuous for two weeks at height of attack. Much pain. Swelling of face and extremities. Trousseau's symptom present. Duration, five weeks. No note as to rickets. Artificial food. Constipation, then diarrhea. Dentition.

9. Krauss: Eighteen months. Mild attacks, lasting a few minutes, at intervals of half an hour to two hours. Duration, one week. No note as to rachitis. Vomiting. Diarrhea. Bronchitis.

10. Krauss: Thirteen months. Mild attacks, lasting five to ten minutes, several times, daily. Duration, sixteen days. No note as to rachitis. Gastro-intestinal disturbance. Bronchitis.

11. Krauss: Nine months. Paroxysms, involving hands and legs. Duration, three weeks. No note as to rachitis. Bronchitis.

12. Krauss: Eleven months. Remittent paroxysms; most severe in arms. Duration, two weeks. No note as to rachitis. Severe gastro-intestinal disturbance. Dentition. Bronchitis.

13. Carpenter: Eleven months. Tonic spasms. Laryngismus stridulus. Recovery, slow. Mild recurrence for several years. No note as to rachitis. Followed purulent effusion in shoulder-joint after scarlet fever.

A case reported by Miles as tetany, and another by Carpenter, are probably cases of tetanus. In another, reported by Carpenter, the diagnosis was based entirely on laryngismus stridulus, and, therefore, can not be accepted.

The disease is certainly a very unusual one in Boston, as is shown by the following statistics from the Medical Out-Patient Department of the Infants' Hospital, during the last two years. The great majority of the patients treated there are infants under two years of age, belonging to the poorest classes. Both their age and hygienic surroundings would seem likely, therefore, to render them especially favorable subjects for the development of both rickets and tetany. Seventy-one hundred and fourteen cases of disease were treated during the years 1896 and 1897, and among them was one case of tetany. One hundred and ninety-six were classified as rickets. This number, however, comprises only those cases in which rachitis was the condition demanding treatment, and does not include the far greater number of cases in which rickets was present as a complication. The one case of tetany, which is reported in full below, showed but few evidences of rickets. It would seem from these figures, therefore, that rachitis is not a factor of great importance in the etiology of tetany. I have, during the last five years, seen six cases of tetany in infants. Three were mild and three severe. The histories of these are as follows:

Case 1.—Annie P., four months old; was seen at the Massachusetts Charitable Eye and Ear Infirmary on account of a suspicious eruption. The mastoid disease, for which an operation had been performed some days before, was progressing favorably. Nothing was known as to her history, and the contractures had not been noted. There was slight diarrhea and the temperature was moderately elevated. Handling was somewhat painful. There were frequent, short, typic paroxysmal contractures of the hands and arms. No laryngospasm; facial phenomena absent; Trousseau's symptom easily elicited; knee-jerks exaggerated. There were no evidences of rickets. She unfortunately soon passed out of observation, and nothing is known as to the further progress of the case.

Case 2.—Gladys R., colored, four months old, was brought to the Infants' Hospital chiefly because she did not gain weight. She had always been feeble, and was said to weigh less than at birth. She had been fed on a varied collection of patent "foods," the mixture at the time being one of Mellins' Food and boiled milk. She had all of this mixture which she would take at any time. There was no vomiting, some abdominal pain, and a moderate diarrhea. She had "spasms" frequently, in which she "wriggled and clenched her hands." No laryngospasm. She was poorly developed, but fairly nourished. There was no evidence of rickets. During the examination there were frequent short, intermittent, typic contractures in the arms and hands. There was apparently no pain, either on handling or during the paroxysms. The facial phenomenon could not be obtained, but Trousseau's symptom was easily elicited. She was given a carefully modified milk, but no drugs. When seen, eight days later, she had gained ten ounces, and the gastro-intestinal symptoms had diminished greatly. There had been no spasms for some days. Trousseau's symptom, however, was easily developed. She was then lost sight of, and nothing is known as to the final outcome of the case.

Case 3.—Rebecca B., ten months old, was brought to the Infants' Hospital, May 6. Since the first of January she had had one or more "spasms" a day, lasting from a few seconds to five minutes. They also sometimes occurred during sleep. In these "spasms" the upper part of the body stiffened, the arms were flexed at the elbows, the thumb contracted into the palm, and she "got black in the face." For the same length of time she had had frequent attacks of noisy breathing. An older child had had a similar trouble, lasting a month at one time. She was fed on breast milk and on a mixture of cow's milk and water. She seldom vomited, and the dejections were normal, except for an occasional curd. Her surroundings were very good for a child of the poorer classes. She was well developed and nourished. Color good. Skin normal. Anterior fontanelle, six c.c. by eight c.c. No craniotabes. Two teeth. Spine normal. Heart and lungs normal. A considerable rosary. Flaring of lower chest. Abdomen large. Spleen palpable. Epiphyses at wrists enlarged. During the examination she had a typic contracture, involving the arms only, lasting about half a minute. She also had several attacks of laryngospasm. The facial phenomenon was easily elicited, but Trousseau's

symptom could not be produced. The reflexes were normal. She was put on a carefully modified milk in addition to the breast, and given small doses of bromid. The spasms ceased on the 10th and the laryngismus on the 23d. The facial phenomenon was present on the 10th, but had disappeared on the 13th. No new symptoms developed.

Case 4.—James C., six months old, was seen in consultation with Dr. J. L. Ames, Jan. 25, 1898. He was a large, strong baby at birth, but was completely upset by improper feeding during the first six weeks. From that time on his digestion was feeble, although he was carefully and correctly fed. He did not gain normally, and vomited from time to time. The stools, however, were normal. His care and surroundings were irreproachable. On the 19th day he began to vomit again, but his dejections remained normal. He cried much, and seemed to be in pain. His temperature ranged in the neighborhood of 100 degrees. Slight "clenching of the hands,"—first noted on the 20th—gradually increased. He had a mild "spasm" on the 23d. He was cutting several incisor teeth. The urine was diminished in amount. He was fairly developed and nourished. Skin in good condition; rather pale. Fontanelle level—not tense. One tooth; gum distended by another. Slight stomatitis. No rosary. Heart, lungs and abdomen normal. Moderate umbilical hernia. Phimosis. No rigidity of neck, but tendency to hold head backward. Remittent contractures of hands and feet, apparently not attended by pain. Extended thumbs strongly adducted into palms. Little and ring fingers flexed at metacarpo-phalangeal joint, extended at phalangeal; other fingers firmly flexed. Slight flexion at wrists. Elbow and shoulder joints free. Feet in perfectly typic position. Toes sharply flexed at metatarso-phalangeal joint, extended at phalangeal. Foot much arched and extended. Knees and hips flexed. Reduction of spasm not painful. Facial phenomenon doubtful. Trousseau's symptom easily elicited. Knee-jerks lively.

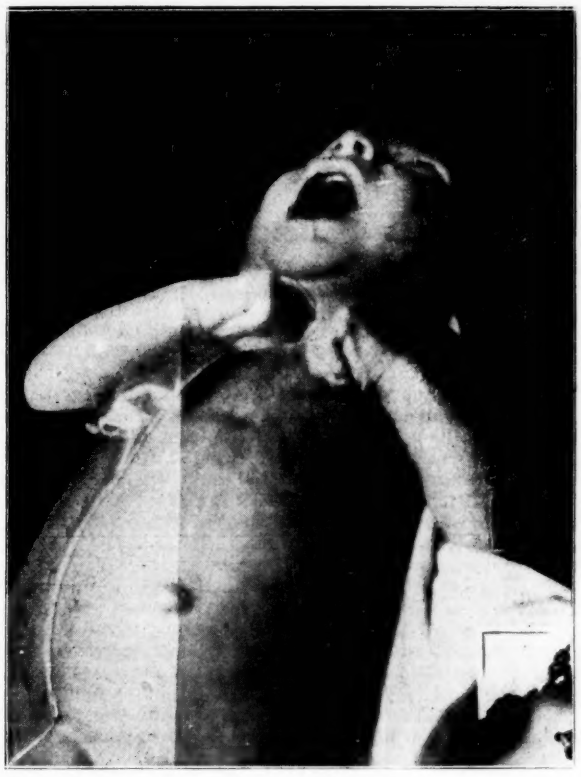
He was given a different modification of milk, calomel, salol and bromid. The further treatment was on these same lines. He had numerous spasms during the next few days and the paroxysmal contractures increased in severity. Under careful feeding all the symptoms of indigestion disappeared during the next month, but there was no gain in weight. After the first week the contractures diminished rapidly in frequency and severity and were entirely gone in a month.

Case 5.—John W., four months old, was brought to the City Hospital, Oct. 21, 1897. There was no specific history, and the other children were in every way normal. He was born at full term, after a rapid, normal, vertex labor. Convulsions are said to have begun on the day of his birth, and to have continued until some time in July. The mother also states that she noticed contraction of the fingers after the first convulsion, and that it has persisted since. I saw him at the Infants' Hospital in July, however, but noticed no contractures. I sent him to the Summer Hospital at Rainsford Island, with the diagnosis of "starvation." He remained there for some weeks, but no contractures were noted.

He was fed on condensed milk previous to his admission to Rainsford, and on modified milk during his stay there. He was then given Mellins' Food, which he was taking when seen. He had been vomiting for some weeks. The bowels moved two or three times a day, the dejections being large, yellowish-white and undigested. He slept but little and cried constantly. "The whole body was constantly rigid, the spasm not even relaxing in sleep." Motion was painful.

Poorly developed and emaciated; skin dry; fontanelle level; snuffles; no teeth; mouth normal; tendency to laryngospasm when crying; unable to hold up head when sitting; when lying, head held backward stiffly, but spasm can be overcome; facial phenomenon not obtained; heart and lungs normal; no rosary; abdomen large and tense; slight umbilical hernia; no enlargement of liver or spleen; phimosis; no glandular enlargement; arms held rigidly flexed at the elbow; shoulders also somewhat rigid; wrists slightly flexed, hands in pronation; extended thumbs very strongly adducted across the palms; fingers flexed at metacarpo-phalangeal and first phalangeal joints, extended at the second. This spasm varied in intensity, but was never voluntarily relaxed. It could be almost entirely overcome, but only with the causation of considerable pain. Trousseau's symptom was not determined because of the constant spasm. There was a tendency to hold the legs crossed, and at times the knees were flexed and the feet extended. The spasm was always very slight, however, and was easily overcome; knee-jerks exaggerated; electric reactions and sensation not determined.

Warm baths and light rubbing were advised. He was put on a properly modified milk and given small doses of bromid of potassium. Improvement in the digestive symptoms was almost immediate and was soon followed by improvement in the nervous symptoms. By November 7 the spasms were intermittent, occurring only at intervals, and the arms and legs were used a little voluntarily. Trousseau's symptom was easily elicited. By November 27 the spasms were very infrequent and of slight intensity and all motions were free. All trace of spasm disappeared some weeks later and Trousseau's symptom could not be elicited. There has been no recurrence of the symptoms.



JOHN W.

Case 6.—Sherry M., $10\frac{1}{2}$ months old, was seen at the Infants' Hospital June 1, 1897.

Family history: No tuberculosis nor syphilis; father and mother each 29 years of age and well.

First child—Instrumental; nursed; always well.

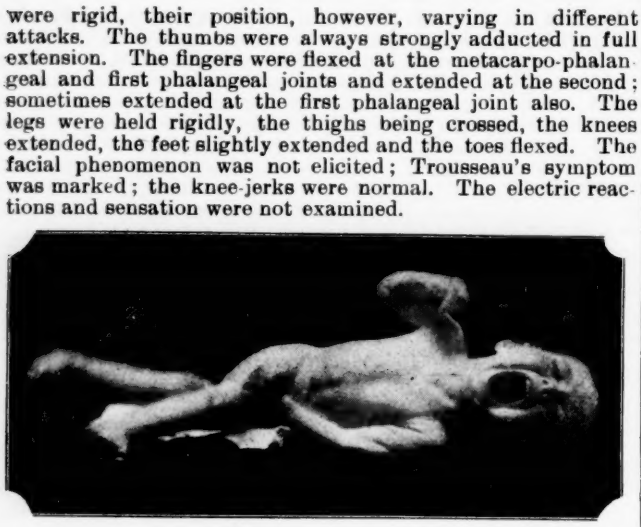
Second child—Instrumental; nursed; always well.

Third child—Instrumental; nursed only; well up to 11 months, when had an attack of vomiting and diarrhea and began to stiffen. Vomiting, constipation and wasting continued and stiffness increased and continued up to death at 18 months. Had no food but breast and beef-juice.

Fourth child—Instrumental; nursed only; well up to 7 months, when had a cough and cold followed by vomiting, constipation, wasting and gradually increasing stiffness ending in death at 11 months. Food was breast, cream and orange juice.

Fifth child—The patient. Normal vertex labor; was well up to 7 months, when it was noted that she was not as active as she had been. Vomiting began and increased, also constipation, which grew steadily worse, the bowels moving only with drugs. At $9\frac{1}{2}$ months she began to hold her head backward, and for the last three was in much the same condition as when first seen. She had the breast only until her sickness began, but after that was given in addition oatmeal gruel, milk and beef-juice and during the last few days a modified milk. She slept but little, and cried almost constantly. All motion seemed to cause pain and increased and brought on spasm. The spasm was never entirely relaxed even during sleep. Fairly developed and nourished. Skin smooth and soft. Color fair; fontanelle normal size; heart, lungs and abdomen normal; no rosary; no glandular enlargement; the arms and legs were in a state of almost constant contracture, which never entirely relaxed. Any motion or excitement caused an increase of the spasm with crying. During the more intense spasms the head was much retracted and the back in the position of moderate opisthotonos. Respiratory spasm was marked, the chest being fixed in the position of full inspiration. The arms

were rigid, their position, however, varying in different attacks. The thumbs were always strongly adducted in full extension. The fingers were flexed at the metacarpo-phalangeal and first phalangeal joints and extended at the second; sometimes extended at the first phalangeal joint also. The legs were held rigidly, the thighs being crossed, the knees extended, the feet slightly extended and the toes flexed. The facial phenomenon was not elicited; Trousseau's symptom was marked; the knee-jerks were normal. The electric reactions and sensation were not examined.



As the history of the other children suggested some trouble with the breast milk, and as this child did better on a mixture of modified milk and breast-milk than on breast-milk alone, the nursing was stopped and she was given modified milk only. She was also given small doses of bromid of potassium. There was no improvement in the spasm, vomiting and constipation. There was also a progressive loss of weight and a continuous temperature, ranging from 99 to 100 degrees. She was therefore sent to the Summer Hospital at Rainsford Island on June 14 and remained there for more than a month. While there she vomited constantly and lost weight steadily. The dejections, however, were normal. Her temperature ranged from 99 to 101 degrees. The contractures continued undiminished. During the next three weeks she improved in every way. She cried less, slept all night and had spasms only when disturbed. The symptoms increased again, however, and she was lost sight of until November 22. During this time she was kept on a modified milk of very low percentages, ordered when she was last seen. She had emaciated to a skeleton, and was very weak. She was vomiting a little. The bowels were constipated but the dejections were normal in character. She slept well and relaxed entirely during sleep. She was quiet when awake but had more or less spasm most of the time. As she was then sixteen months old she was given starchy foods in addition to milk. Passive motion and light rubbing were also advised. Improvement from this time on was slow but progressive. The vomiting ceased but the bowels remained somewhat costive. Gain in weight and strength was steady. The spasm diminished slowly, remaining longest in the hands. It left them about March 1, 1898.

TREATMENT.

It is evident from the obscurity which still exists with regard to the origin and nature of tetany that there can be no specific treatment. As what evidence there is, however, all seems to show that the disease is due to toxic poisoning of some sort, treatment may be directed to the prevention of the formation of toxic substances, and to their elimination, if already formed. It is probable that many of these toxins are absorbed from the alimentary tract and some from the respiratory tract. Others may be produced as the result of abnormal metabolism. The production of alimentary toxins can be best prevented by a suitable diet. Regulation of the diet is probably, therefore, the most important method of preventive treatment. Intestinal antiseptics may also be of use, and are, at any rate, worthy of a trial. The formation and absorption of respiratory toxins can be best prevented by a liberal supply of fresh air and sunlight. Anything which tends to improve the hygienic surroundings is of use. Elimination must naturally take place largely through the intestinal tract, and to a less extent through the kidneys and skin. Emetics, purgatives and lavage of the stomach and colon tend, not only to favor elimination, but also to prevent the absorption of toxic substances already formed. The kidneys must be kept active by a liberal supply of water and possibly by mild diuretics. The skin may be stimulated by proper hygienic measures.

Symptomatic treatment is also important and consists largely in the avoidance of excitants of spasm and in the employment of antispasmodics. Excitants to be avoided are cold, handling, noise and excitement. Antispasmodic treatment may be local, by the use of such measures as warmth, warm baths, inunctions of oil and light massage, or general, by drugs. The bromids and chloral are the most useful, but opium, belladonna, valerian and musk may be tried. During convulsions chloroform or ether may be administered by inhalation.

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NEURALGIA AND NERVE CRIES.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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CHICAGO, ILL.

From time immemorial certain phases or symptoms of disease which have been uncertain in their pathology or whose pathology has been unknown, have been classified under general terms, vague and uncertain; and these terms have varied with the ages. Time was when the humors of the body accounted for all manifestations of disease which could not be accounted for or classified by the scapel, inspection, or inductive reasoning from the most simple and elementary medical facts. Humors have passed, and we now classify such disturbance as manifestations of a diathesis, or of chronic rheumatism or gout, of the presence in the blood of nerve irritants, as uric acid, toxalbumins, auto-infections, etc., or as due to the cries of sensitive nerves for pabulum which an impoverished circulatory medium no longer furnishes them, and call them neuralgia.

The longer I study the matter, the more am I inclined to believe that a healthy nerve in a healthy perineurilemma does not ache, or if it does so, the case is rare. Furthermore, the term "neuralgia" should

be excluded from our vocabulary as an entity, and confined to the very few and rare instances where nerves ache for no, as yet, apparent cause. The term itself is a good one but is not so definite and limited as the word "cough," and should not be used except to define a symptom.

With such prelude, I take up the study of certain forms of pain not directly associated with a definite cause. The sources of pain are many. Under the title of my paper, I wish to include only such nerve cries as are not directly and immediately traceable to some evident physical cause. For purposes of classification, the source of such pain may lie within the nerve itself or its environment, or may be found in irritants carried to the nerve in question through the medium of the circulatory fluids or in defects in said fluids. In the first class may be grouped the following:

1, chronic inflammatory processes not recognized as neuritis: 2, old adhesions the result of inflammatory products, present after all active inflammatory process has ceased; 3, changes in the perineurilemma from chronic rheumatism and arthritis deformans; 4, pressure from cicatrices and new growths. Particularly is this true in syphilis where gummata or periosteal nodes or inflammatory changes about canals, cause pressure upon nerve trunks; 5, reflex, or rather referred pain, particularly common about the fifth nerve; 6, fatigue pains common in the back and about the loins and head; 7, hyperesthesia of certain sets of nerves, and under this head I would include neurasthenia and hysteria.

In a second class may be arranged the diathetic causes as follows: 1, the accumulation of the gouty acids in perineurilemma and sheath; 2, anemia, collemia, malaria, auto-toxins and poisons, as lead, copper and mercury, diabetes, syphilis.

A third class might be made of causes for pain following and consequent upon nerve conditions as outlined in the preceding two classes and be tabulated as follows: 1, change in blood-pressure; 2, in atmospheric pressure; 3, change in lymph-pressure and in lymph constituents.

The above classification makes no mention of the crises of ataxia, of eye strain, of the various nerve cries connected directly with the eye, ear, nose, throat, nor with any source of pain usually clearly defined and referable to definite and recognized local disease, and I make no effort in the present paper to cover the whole field which my title might include, but do desire to call attention to certain points which are either overlooked or to which little or no attention is given, and yet which play an important part in the causation of pain.

Gray defines neuralgia as a "functional disease of the sensory fibers of the peripheral nerves, and manifests itself by pain." Such definition covers the meaning of the term as ordinarily used, but a closer study of all cases of pain, not related to an organ or definitely diseased part, limits the neuralgia, per se, to narrower and narrower fields, and almost all cases of pain, when full investigation has been made, are better classified under other heads than that of neuralgia.

The subjects which have been prominently before me in my studies are: 1, the effect produced by inflammatory adhesions and by the products of, and exudates remaining after inflammations, modifying or restricting the functioning of nerves so hampered; 2, lymph stasis; 3, the auto nerve poisons.

Coming to the consideration of my first cause of pain, namely, nerve cries arising from the local condition of a nerve which has undergone inflammation and whose function is more or less affected and hampered, as the result, there is room for much conjecturing. Nevertheless, certain clinical facts point so evidently that their pointings must be true. It has been my observation that a patient who has once gone through an attack of neuritis is a most delicate barometer and hydrometer, and the reason is not far to find. After a nerve has passed through its history of inflammation, resolution rarely takes place perfectly. Three conditions follow in the wake: First, a development of connective tissue in the bed of the nerve, tying it down more or less; second, a development of connective tissue in neurilemma and perineurilemma, making the whole envelope of the nerve thicker and less pliable: third, and perhaps more important than all, a partial vasomotor palsy and stasis in the intimate vessels of the nerve, due to the general inelasticity. As a result, a nerve thus thickened and with poorer circulation will less readily accommodate itself to the varying swing of atmospheric pressure and moisture. Making an average, we say that with the ordinary barometric pressure of our latitude a man of 150 pounds is under a pressure of 30,000 pounds, or 15 pounds to the square inch. Now let the pressure be quickly changed, especially in the way of taking off pressure, and a healthy vasomotor center responds at once, increases its grip upon blood-vessel structure and the lung speedily unloads the excess of gas held in the fluids under a pressure of one atmosphere and now somewhat reduced. Such is not the case with the hampered nerve. Owing to its inelasticity and poor vasomotor control, the nerve is under pressure—pressure of blood and pressure of gas—and the owner of that nerve is suffering torment long before the storm has broken. Mills, in his recent work upon the nervous system and its diseases, quotes from Mitchell and Catlin, and shows a diagram clearly establishing a close relation between pain and barometric pressure and the temperature. He says at the center of the vast area of every moving storm is a moving space of the greatest barometric depression, known as the storm center, which the rain usually precedes by 550 or 600 miles and around which is a forerunning area of neuralgia.

A similar explanation to that given above will account for the neuralgia coincident in our climate with east wind and consequent upon the amount of moisture or rather, dampness, in the air and its conductivity of both animal heat and electricity.

The subject of lymph stasis and the daily fluctuations in size of the brain and body are matters of only passing moment to healthy nerve fibers; but, to nerve trunks bound down by the products of old inflammations and with imperfect vasomotor control, such swaying in the peri-vascular spaces and in the lymph-channels may be of great moment. The diurnal ebb and flow of lymph, besides the thrice daily ebb and flow, causes a daily change in size of the parts of the body, which change is physiologic. It is fairly well established as a fact that the circumference of a limb varies materially in the twenty-four hours, being smallest in the morning, at the time of lowest temperature, and largest in the late afternoon and evening, when the daily temperature swing has reached its highest point. This fact offers a ready explanation of the difficulty which rheumatic and gouty patients, whose vaso-constrictors are more feeble and

whose lymph-channels are especially prone to fill in the evening, have in wearing articles of clothing in the evening which were comfortable in the morning. The same character of reasoning will explain the evening ache of dentals when the nerve is no longer actively inflamed but is surrounded by an area if not of infiltration, of lowered resistance. The curious and intense ache present in Morton's metatarsalgia, coming on after sundown and particularly noticeable after a full meal, was somewhat difficult of explanation until the lymph-tide was recognized as a possible cause for the disturbance. It has been a common observation that the extremities swell, or rather increase physiologically, in size toward the close of the day, and the development of pain has been rightly ascribed to such increase in size, but why such increase took place remained a mystery, excepting as the increase in size of peripheral blood-vessels might account for it.

Physiologists, such as Starling and Heidenhain, are busy thrashing out the truth of lymph excretion, of lymphagogues, and lymph secretion, and the war goes on right merrily. From the facts thus far established it would seem that the endothelial cells of blood-vessels do not actively excrete lymph, but as in the case of the kidney, exert a selective action upon the plasma so that certain substances are strained or sieved through. Lymph is not of the same specific gravity as the plasma of the blood. It may contain an excess of proteids, also of tissue waste, as urates and uric acid. L. B. Mendel in the *Journal of Physiology*, Vol. xix, declares it is never of the same specific gravity as the blood, and contains a larger proportion of sodium chlorid and of sugar than is found in the blood.

Heidenhain has called attention to the existence of two classes of bodies which, when injected into the circulation have the power of largely increasing the flow of lymph. The *first class*, which includes peptones, extract of crayfish, mussels, etc., and at times, egg albumin, acts particularly by greatly increasing the exudate from the blood, making both blood and lymph over-concentrated. The *second class*, such as sugars and neutral salts, acts on the tissues, robbing them of water, making both lymph and blood more watery.

The above facts may eventually assist in solving the curious nerve and circulatory disturbances which we see after the ingestion of certain articles of food, and particularly when there are individual idiosyncrasies. It would also help to explain the phenomena of angio-neurotic edema. Owing to the readiness with which uric acid is thrown out of the general circulation and the lessened resistance of certain nerves in the gouty and lithemic, and the fact that the lymph-channels make ready bayous for gouty salts, we have added means for comprehending gout neuralgia.

The part played in the production of pain by my third division of causes for pain, namely, the various substances in the body produced by imperfect tissue metabolism or turned into the circulation by resorption from the intestinal tract, is engaging our attention more daily, as studies are being pushed deeper into the unknown domain of digestion and assimilation in the circle outside the intestinal tract. That the presence in the blood of certain substances which are inimical to healthy nerve life does cause pain is beyond question. The gouty and lithemic are particularly prone to neuralgia, so are the syphilitic and alcoholics, and those who suffer from intestinal fermentation; all which disorders are recognized as potent in causing dyscrasia of the blood. Diabetes is an exciting cause for polyneuritis, but is also causative of nerve cries which can not be ascribed to neuritis. Von Noorden states that the earliest sensory disturbances to be found in diabetes are paresthesia, anesthesia and hyeresthesia of varying degree and location, and pain and cramps. These neuritic symptoms appear very early, and may be among the first symptoms of which complaint is made, and the painful areas are located more usually in the third branch of the trigeminal and in the crural nerves.

Haig, in his last edition of "Uric Acid in Causation of Disease," makes casual mention only of uric acid as causing neuritis. He states it as the cause of everything from gout to anemia, chlorosis to melancholia, but as a grave cause of neuritis or of nerve pain, only hints. Marshall, years ago, recognized the fact that odontalgia was not caused by dental caries alone, but that many a gouty patient would have an intense odontalgia after a heavy meat and champagne dinner without any cause to be found in the teeth per se, and that such pain did not yield to the ordinary dental measures, but to attention directed to the body condition at large. Pope justly calls a combination of alcohol, tobacco and a late supper, "a powerful trinity in the causation of neuralgia."

Whether uric acid or the biurates be the cause of gout, certain it is that the gouty are especially prone to most obstinate and severe forms of neuralgia, and that these attacks are often recurrent and paroxysmal and prone to resemble articular explosions of gout. Lyman states that no part of the body escapes their incidence, and their duration varies from the most transient fulgurant pain to the un-intermitting and persistent agony of chronic inflammation. Gout particularly affects the sciatic nerve, next the trifacial and intercostals. If the statement that "a nerve once inflamed is a point of lessened resistance afterward" be true, it is not hard to understand why gouty nerves should be prone to suffer. The lowering of external temperature causes a rise in acidity in the extremities of the body. Such acidity favors the throwing out of circulation and the precipitation of gouty acids.

In concluding I wish to call attention especially to the influence upon the general nerve structure and particularly upon the higher nerve-centers of the lymph-flow and its constituents. The readiness with which sugar and the lithemic salts pass out of the general blood-circuit into lymph-channels, and the irritating effect of such materials, has helped me to understand many nerve cries obscure in their origin. That delicately balanced condition of body economy which Haig dwells upon as collemia, in which the circulatory fluids of the body are saturated with lithemic products held in solution by the alkalinity of the blood and requiring but the slightest change in alkalescence to deposit or throw down such salts, explains beautifully the rapidity with which sudden neuralgia may take place from apparently slight perturbing causes. It is wise in all cases of obscure nerve pain to hunt farther for its cause than is to be found in the self-satisfying term "neuralgia."

Orthoform.—In prurigo and herpes zoster orthoform has been found extremely effective by Horn. He uses it as a dry powder or in a 10 per cent. salve.—*Die Arztl. Praxis*, 13.

A FURTHER CONTRIBUTION TO THE STUDY OF THE DIFFICULTIES OF DEFECATION IN INFANTS.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY THOS. CHAS. MARTIN, M.D.

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At last year's meeting of this Section I offered for inspection a score of dried specimens of the infant's lower intestine as evidence that the infant strains at stool because of the imperfect development of the anatomic features concerned in the mechanism of defecation. Examination of those specimens revealed the fact that the wall of the infant rectum and sigmoid flexure is thin, compared to that of the adult. It was impossible to distinguish the longitudinal muscular bands which are so apparent in the gut of the adult. It was observed that in the fresh state the mu-

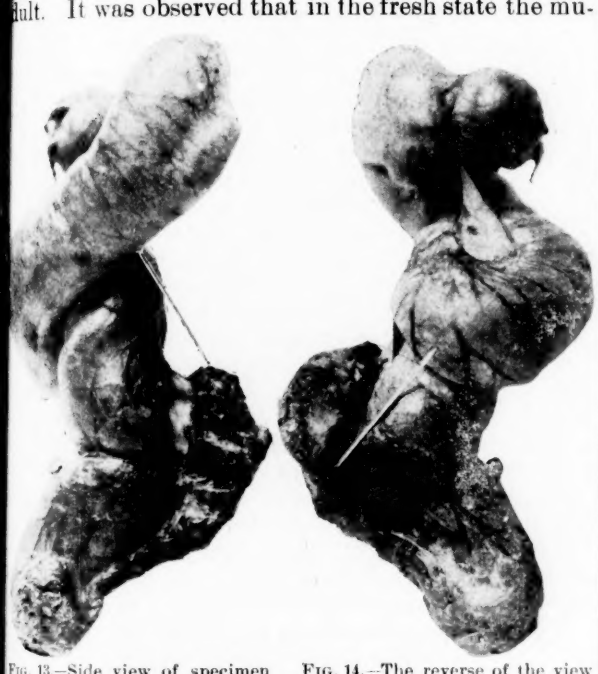

FIG. 13.—Side view of specimen shown in Fig. 12. The mesentery from sacrum and coccyx to the rectum is fairly well shown, but is shown shorter than in the fresh state, alcohol immersion, varnishing and drying having shrunken it. Observe also how nearly the peritoneum approaches to the anus.

FIG. 14.—The reverse of the view shown in Fig. 13.

cous membrane constitutes a greater part of the gut-wall of the infant, and that the mucous membrane and muscular coats are more intimately adherent than in the adult. The infant gut being very deficient in muscular elements, the intrinsic power of peristalsis can not be present in that degree necessary to it as a component factor of defecation. It was shown that the relations of the peritoneum to the rectum of the infant also contribute to the difficulties of defecation, as also does the relatively great length of the descending colon and sigmoid flexures.

In the child the mesentery of the sigmoid flexure and rectum is of great length. In young children the length of the sigmoidal mesentery from its attachment to the parietes to its invagination of the lower loop of the sigmoid is often greater than the distance from the promontory of the sacrum to the distal bone of the coccyx. From the sigmoido-rectal juncture to the beginning of the middle third of the rectum the mesentery rapidly shortens, but apparently completely invests the upper third of the rectum. (See Figs. 13 and 14.) The middle and lower thirds of the abdominal rectum are not so completely invested with peritoneum, and present upon their posterior parts a vertical lane bare of peritoneum, from the borders of which the peritoneum is reflected in lateral directions. This uncovered part of the gut is not applied directly to the sacrum and coccyx, and there is a space between, which is occupied by loose connective tissue. The distance from the dorsal parietes to the gut is variable here, being from one-half to one-fourth of an inch—1.27 to .63 cm. At the beginning of the middle third there is usually a gradual decrease in the length of the peritoneal band as it descends, till it is one-eighth or possibly one-sixteenth of an inch—.32 or .16 cm.—in length at the last bone of the coccyx; it rapidly shortens from this point to its termination. The parietal peritoneum descends over the ischial tuberosities and approaches nearly to the ental

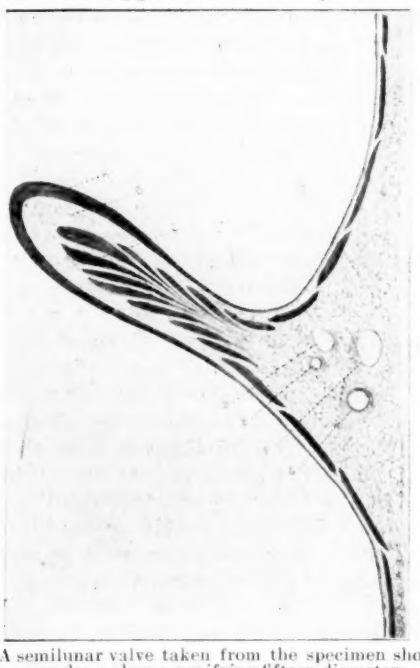

FIG. 23.—A semilunar valve taken from the specimen shown in Fig. 18, drawn as seen under a glass magnifying fifteen diameters. A, mucous membrane; B, fibrous tissue; C, bundles of circular muscular fibres; D, vein; E, artery; F, vein; G, artery; H, aureolar and adipose tissue.

sphincter muscle. In the newly born the peritoneum is situated within one-fourth inch—.63 cm.—of the anal skin. (See Fig. 13.)

The disproportionately great length of descending colon and mesentery of the infant obviously contributes to the possibility of angulation of the gut. The angulations constitute a resistance to the descent of the feces.

The third feature obstructive to defection in infants is the rectal valve. It is a feature and factor which not only has not been recognized, but is one whose very anatomic existence has been most ingeniously and persistently disputed. In each and every instance of more than three hundred subjects examined by me these valves have been present, though in varying number and position in different subjects. In most cases there are present three valves; in some there are four, and in others there are but two. The infant specimens shown indicate that the valves are particularly well-developed at birth, spanning, as they do, one-half the diameter of the gut.

The microscopic section which was shown was taken from the middle of the lower valve of the adult specimen exhibited. (See Fig. 23.) It was shown magnified fifteen diameters. The thickened state of the mucous membrane over the free border of the valve fortifies that point against the increased friction which that part must necessarily bear. Beneath it is noticeable the heavy layer of fibrous tissue which gradually diminishes till it is lost at the valve base. Bundles of circular muscular fibers are seen in the middle of the valve. At its base are seen arteries and veins for its special nutrition. This structural arrangement makes this organ the typic anatomic valve—evidence of fibrous tissue in the organ is a distinct addition to our knowledge of this subject. It must be readily seen that the presence in the rectum of such a structure as an anatomic valve would be essentially obstructive to the passage of feces.

The bony pelvic outlet in the infant is so contracted that the limits of anal expansion are such as to almost defeat the passage through it of other than fluid feces. The average transverse diameter of the newly-born infant's pelvic outlet is but little more than one-half inch—1.27 cm.—the pubo-coccygeal measurement is even less. The average distensibility of the sigmoid flexure and rectal chambers, in which the feces when firm are formed, is four or five times that of the anal expansibility; thus it is readily perceived that, compared to the adult, the juxtaposition of the ischial tuberosities in the infant supplies a most obstinate obstructive factor in defecation.

Aside from the difficulties of defecation which the undeveloped state of the anatomy of the organs of defecation entail upon the infant, there are two more or less grave accidents which are peculiarly common to infants, namely: prolapse of the entire rectum and inguinal hernia. Prolapse, involving all the coats of the rectum, or complete prolapse as it has been called, is due to the great length of the mesentery with which the rectum of the infant is provided, and to the undeveloped state of the other pelvic organs and contiguous structures, which in a state of more complete development in the adult, contribute support to the rectum.

Inguinal hernia is more likely to be acquired by the infant than the adult, because of the relatively greater length of the mesentery in the infant, and because of the relatively smaller pelvis and protuberant, pot-bellied abdomen of the infant, which latter feature places the abdominal ring in almost as dependent a position in the infant abdominal wall, as the anus itself is placed in the abdomen of the adult.

These studies of the infant, when compared to similar studies of the adult, admit of the conclusion, I believe, that the normally formed infant's escape from these difficulties is ultimately assured by process of development, but the tribulations, the accidents referred to, and the dangers which are recognized as common to the period preceding adolescence make it incumbent upon us that we direct efforts toward their alleviation. Diet, hygroscopic suppositories and fluid injections which may render more fluid the intestinal contents will favor their descent through the convoluted gut, the valvulated rectum and the contracted anus. Massage of the abdomen over the region of the colon aids in 1, the development of the auxiliary abdominal muscles of defecation, and the intrinsic expulsory muscles of the intestinal wall; further, such manipulations 2, directly propel the gut's contents along the tortuous course of the bowel, and 3, re tively reduce the obstructive features of the valve. there be an overgrowth of the rectal valve, and if form an almost impassable barrier to the descent the feces, it may be in some measure overcome dilatation, which may be effected through the mea of the gently-introduced trained finger. In case t defective valve exists in the form of a diaphragma stricture or membranous septum with a central ap ture, the valve may be safely cut by a method d scribed by the writer elsewhere.[1]

As at birth the pelvic bones are not yet united, a as the ramii of the ischium and pubes are still qui cartilaginous, it is obviously possible that a lit energy intelligently directed from without will spre the pelvic outlet, whereas the infant labors ineffect ally with his forces applied, as they are, at a disa vantage from within. The nurse, therefore, may directed to pare away her nail-ends, lubricate h fingers and gently introduce the smallest finger throu the anus. Daily gradual dilatation of the infan pelvic outlet should be practised, graduating fro finger to finger until the required degree of dilatati be reached. The introduction of the finger, indepen ent of its dilating uses, incites the mechanism of def cation to action. Rachitic subjects with abnorm contraction of the pelvic outlet demand forcible divu sion of the ischial tuberosities.

That form of complete prolapse which is so co mon to infants, for the anatomic reasons already sp cified, is to be managed by the employment of t procedures already proposed, together with prop posture of the little subject at the time of defecatio and after the prolapsed bowel has been returne That posture which favors the production of prolap is the one of flexion, which is naturally assumed f defecation. Extension of the limbs is the positio which best overcomes the tendency to prolapse, an therefore the subject should be required to take eith the erect-extended or the horizontal-extended postu at the time of straining at stool as a preventiv measure. The best position of the patient for th reduction of the prolapsed rectum is that known the knee-chest posture, and the best posture to pr vent its immediate recurrence is that of horizont extension. As an auxiliary means of retention of th rectum the buttocks may be strapped together wit an adhesive band.

Acquired inguinal hernia in infants should not b operated on, if its control be possible by means of th truss, for the reason that the natural growth of th infant and consequent expansion of the pelvis con verts the mesenteric to parietal peritoneum and shor ens the range of movement of the intestine, and suc growth also places the abdominal ring in a more pro tected situation, and removes it from the excessiv pressure of the intestine—thus the child outgrow hernia. These observations on hernia have no refer ence whatever to those forms of congenital herni which depend upon errors of development of th inguinal canal or of its contents.

[1] See paper by the writer presented in the Surgical Section.

Injection for General Weakness.—In severe gastro-intestina infections in infancy (F. Fede.), the following is recommende as an injection: bihydrochlorate of quinin, asafetida, tinctur of musk, āā 1 gram; boiled water 120 grams; yolk of one egg For two or three injections during the twenty-four hours.— *Semaine Méd.*, September 28.

WHAT ARE THE SYMPTOMS OF NEPHRITIS?

BY ROBERT T. EDES.

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This question was asked in an editorial of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of July 23, 1898, the writer in his comments seeming to intimate that the subject has been complicated rather than simplified by some of the more modern observations, and that it is surrounded by needless mystery.

It is true that the diagnosis is not quite so simple as in the days when "albuminuria" covered almost the whole ground of renal pathology, while prognosis was grief and gloomy, and the clinical history prolix only, because of the great variety and severity of the symptoms which might precede the fatal termination. That, however, was longer ago than the "few years" aimed by the editor. Forty years ago it was known that albumin was to be found in the urine in many cases which were not to be considered Bright's disease, and the number of conditions in which it may occur has been constantly added to until at last a "physiologic albuminuria" has been spoken of.

The significance of the presence of casts has undergone similar changes in estimated importance and for similar reasons, until the writers in the JOURNAL (Haines and Skinner, Jan. 29, 1898) claim that by their method of careful search casts may be found in samples of urine even from persons in perfect health. When these facts are brought into connection with another set of (as I believe, exceptional) observations, in which it is shown that the progress of a well-recognized nephritis may be accompanied by neither of these important conditions—once considered almost, if not conclusively, pathognomonic—and when we find also that the person with the high arterial tension shown by the sphygmogram—which has been thought the highly characteristic that Mahomed used to speak of "Bright's disease without nephritis"—may live for years without developing any others, the bewildered student finds himself driven to the conclusion that the only persons who are free from the symptoms of Bright's disease are those who have the disease itself. Now, whatever we may think, as a matter of taste or gratitude or scientific accuracy, of the propriety of naming diseases and symptom-groups after physicians, it seems clear that if we do so, the name should be applied to the conditions described by the writer, and not to something else more or less frequently associated with it, even if the subsequent author calls this the "true ——'s disease" and all others "spurious" or "pseudo-". Certainly Dr. Bright described well-recognized organic gross disease of the kidney, associated during life with the presence in the urine of albumin, detected by heat. He did not describe the hypertrophy of the heart as the disease, although he well knew that it was a frequent accompaniment, nor the high tension of the arteries, nor the casts which he had not seen, nor the traces of albumin which the reagents had not been invented to detect.

It seems that a portion of such obscurity and confusion as still surround the matter—which the editorial in question seems to have exaggerated—is due in part to confusion in nomenclature, in part to a tendency to overestimate the importance of rare exceptions, and to go from one extreme to the other, concluding that so soon as a symptom has been shown not to be pathognomonic it has no longer any value; and in part to another error which sometimes accompanies the development of greater accuracy in diagnosis and the recognition of earlier stages of diseases or perhaps even of a tendency thereto. I mean the mistake of attributing the clinical history and prognosis based upon the study of well-developed and advanced examples to cases which have been recognized by more refined methods at an earlier stage—so early, in fact, that it may often be doubtful whether they have gone far beyond the bounds of normal activity or structure, Such recognition is of the highest value for prophylaxis and therapeutics, but should be utilized with the utmost caution in prognosis, both for the sake of the patient's peace of mind and the physician's reputation; and this caution is never more necessary than in connection with the very class of diseases under consideration.

The following chain of reasoning—although I admit that it can not be found laid down in the books in exactly this form—does not greatly misrepresent the usual state of feeling among the profession not so many years ago, and not yet wholly extinct among the laity. A single observation of albumin in the urine meant albuminuria; albuminuria meant disease of the kidneys; disease of the kidneys meant, in the great majority of cases, chronic Bright's disease; Bright's disease meant steady progress toward a not remote fatal termination, which might be interrupted at any time by various accidents which would still more accelerate it. Some of the links of this chain are weaker than others, but all of them have, of late years, been subjected to searching examination, and they may be taken up in order.

1. As to transient, physiologic or cylic albuminuria: Albumin in small quantity has been found either constantly or at frequent short intervals in the urine of many persons supposedly healthy or more frequently among those quite young who are not actually sick but are a little below par in general condition. When the intervals are more or less regular, usually coinciding with the periods of sleeping and waking, or more properly of lying down and getting up, it is called cyclic. In some exceptional cases a condition of constant albuminuria may last over months or years without manifest impairment of the general health.

In the majority of cases transient albuminuria is provoked by exposure of some kind, frequently such as tends to raise the arterial tension and thus bring more pressure to bear on the kidneys. Cold bathing is the typic example. Other conditions, however, figure prominently among the statistics of those who have found large proportions of albuminurics among healthy persons. Such are, for instance, excessive exercise, and vaccination, and the expectation of examination. What the local conditions are which give rise to transitory albuminuria it is difficult to say, as such cases are not likely to be the subject of postmortem examination, but it is not going far to surmise that they involve some real, if slight and transient and easily reparable, change in the epithelium of the glomeruli. But a single observation showing albumin should not be considered of great diagnostic value, unless the quantity is large or there are other symptoms confirmatory of the suspicions attaching to its presence, or unless repeated examinations show that it is more than temporary.

An exceedingly important point in regard both to this question and the next one, is that of the test used.

TABLE I.—ALBUMINURIA AMONG PERSONS SUPPOSEDLY HEALTHY.

Author.	References.	Class of cases.	Number examined.	Albumin found.	Per cent.	Albumin in larger amounts, or by ordinary tests.	12-25 cgr. per liter.	Less than 12, trace.	Remarks.
Clarke	Brit. Med. Jour., Aug. 16, 1887	Persons expecting examination	20	3	15				
Leube	Virchow's Arch., vol. 72	Healthy soldiers	119	19	16	Not more than 0.1 per cent.			After exercise. Before exercise, morning urine 4 per cent. albuminous. Cylinders and blood corpuscles not found.
Fürbringer	Ztschr. für klin Med., 1879-80	Children	61	7	11.5				Tested by boiling.
Munn	Medical Investigations in Life Insurance	Applicants for life insurance	630	59	10.6				
Kleugden	Arch. für Psych., 1880-81	Attendants in asylum	32	14	43.5	8		6	
Grainger Stewart	Brit. Med. Jour., June 11, 1877	Soldiers	205		37.6				
Grainger Stewart	Brit. Med. Jour., June 11, 1877	Civilians	74		10.8				
Grainger Stewart	Brit. Med. Jour., June 11, 1877	Children	40		17.5				
Grainger Stewart	Brit. Med. Jour., June 11, 1877	Workhouse inmates aged about 60	40		67.5				
Van Noorden	Deutsch. Arch. klin. Med., 1885-86	Soldiers	52		8-10.5				Mucous threads.
Capitan	Inaug. Thèse, Paris, 1883	Soldiers	98	44	45				
Capitan	Inaug. Thèse, Paris, 1883	Children	97	86	89				
De la Celle	Inaug. Thèse, Paris, 1883	Infantry	120	92	77		22		
De la Celle	Inaug. Thèse, Paris, 1883	Cuirassiers exercising	88	70	79.5	1	17		
De la Celle	Inaug. Thèse, Paris, 1883	Soldiers returning from review	111	100	90	4			
De la Celle	Inaug. Thèse, Paris, 1883	Cuirassiers just vaccinated	31	31	100		10		De la Celle. In 701 persons in health 17 give more than 35 cgr. per liter 152, 12 to 25 cgr. per liter.
De la Celle	Inaug. Thèse, Paris, 1883	Students	50	46	92		29		
De la Celle	Inaug. Thèse, Paris, 1883	Children, 6 to 15	61	49	80		9		
De la Celle	Inaug. Thèse, Paris, 1883	Children, 6 to 15	81	62	76.5		5		
De la Celle	Inaug. Thèse, Paris, 1883	Infantry (cold bath)	53	53	100	10	17		
De la Celle	Inaug. Thèse, Paris, 1883	Soldiers after food	94	74	79		9		
Leroux	Revue de Méd., Paris, 1883	Children	330	19	5				
Roberts	Urinary and Renal Diseases	Candidates for life insurance	31	29		0			No albumin by nitric acid or heat. Acid brine (11), picric acid (14), tungstate (28), mercuric iodid (29). Author suspects mucin.
Fox	Lancet, Dec. 12, 1891	Candidates for life insurance	282	86	30				
Tiemann	N. Y. Med. Jour., March 17, 1894	Candidates for life insurance	2,000		9+				
Brannan[1]	N. Y. Med. Jour., July 4, 1891	Candidates for life insurance	365	54	14.8				
Washburn	Med. News, April 5, 1890	Candidates for life insurance	338	20	5.91				
Shepard (chairman)	Proc. Connecticut Med. Soc., 1888, iv, 203	Candidates for life insurance; a few sold'rs and civili'ns	35,421	328	2—				Out of 20 persons with albumin 7 had casts.
Finot	Comptes Rendu Soc. de Biol., Paris, 1892, 133	Young persons	17		82				Examined at various times of the day. Only 3 were never albuminuric.
Baniè	N. Y. Med. Rec., 1897, Vol. i, p. 111	In jail, healthy,							In 795 analyses, albumin 92 times.
		Age 15 to 25	10	5	50				Casts, 5.
		Age 25 to 35	10	5	50				Casts, 2.
		Age 35 to 45	10	4	40				Casts, 3.
		Age 45 to 55	10	3	30				Casts, 1.
		Age 55 to 65	10	2	20				Casts, 2.

[1] Brannan remarks upon the unusually large percentage found among candidates for life insurance, and quotes Rabagliati as accounting for this condition by saying that the well-to-do have more renal disease, because they eat and drink too much. This apparently does not apply to Shepard's figures.

As more delicate reagents have been employed, the proportion of cases in which albumin—or what is claimed as such—has been found increases, until with "Tanret" (iodohydrargyrate of potassium) it is said to occur in the majority of cases of healthy persons; rising to 90 per cent. in "soldiers returning from a review," and 100 among "cuirassiers just vaccinated" and "infantry after a cold bath." (De la Celle. See table.)

It is obvious that such a test as this is worse than useless, for it can give no useful information to the physician, while if results based upon it be communicated to the patient, it will implant in his mind an apprehension which no subsequent explanations can fully remove. There is no clinical value in a test which draws no line, not even an obscure and uncertain one, between danger and safety. The same remark will apply in less degree to some others, which shade in delicacy from the "Tanret" to the ordinary heat and nitric acid tests—not the "heat *with* nitric acid" test, which should never be used.

Probably these last mark most clearly and conveniently the point at which the line can best be drawn between the presence of albuminuria and "no;" i. e., a negligible amount of, albumin; and the physician who adheres to these, carefully used, will make less trouble for himself and his patient than with any other. He may, however, for convenience and to make sure, sometimes find the acid brine or picric acid useful, and it is within the bounds of possibility that his attention might be called by even more delicate ones, in some exceptional cases, to a renal trouble that might otherwise be overlooked. Any errors of omission of this kind, however, would be as nothing beside those which he would make upon the other side if he adhered to any very excessively delicate test as a criterion of well-developed renal disease. If from 75 to 100 per cent. of healthy persons are known to have albumin in the urine, there is no use in searching for it, for experience tells us that only a much smaller proportion than this are the probable subjects of future renal disease, and neither its presence nor its absence can tell us which are the ones.

Some years ago I collected from various sources a number of tables showing the frequency of the occurrence of albumin, which are reproduced here with some subsequent additions. Among the most noticeable are those of a committee of the Connecticut Medical Society, of which Dr. Shepard of Hartford was chairman, which will be seen to differ very widely from many collected from nearly the same class of persons, which they might be supposed to approximate most nearly. Dr. Shepard says explicitly that he has taken no notice of cases where the albumin was not shown by the heat test. This paper is to be found in the Proceedings of the Connecticut Medical

TABLE II.—ALBUMINURIA OF ADOLESCENTS, CYCLIC AND ACCIDENTAL ALBUMINURIA.

Author.	Reference.	Class of cases.	Number examined.	Casts found.	Remarks.
Moxon	Guy's Hospital reports, xxiii	Young man		Very few	Albumin of adolescence; later renal calculus.
Dukes[2]	British Med. Jour., Nov. 12, 1881.	Young men and boys			Some transient; some recover after years, large proportion first stage Bright's disease.
Johnson	British Med. Jour., Dec. 6, 1873.	Young men		None	After bathing.
Vogel	Virchow's Handbuch, vi.			None	Cases observed by the year; no symptoms; may be slight organic changes.
Pavy	Lancet, Oct. 17, 1885	Men mostly young		None	Cyclic and intermittent; oxalate of lime; no bad health.
Pavy	British Med. Jour., i, 271, 1876	Weston (the pedestrian)		Abundance, hyalin and granul.	During walk; in 1888 in active business. [mal.
Ultzmann	Wiener med. Presse, Jan. 23, 1870	Physicians	8	None	Urine clear, dark, acid, 1025 to 1035; nothing else abnor-
Edlefsen	Mitth. Ver. Sch. Holst. Aertz., 1866 to 1881.		3	Not mentioned; a few times.	Albumin after exertion; supposes no renal diseases (excludes doubtful opalescence).
Fürbringer	Zeitsch. klin. Med., 1879-80	Officers, young physic'ns, blooming young people.		Small cylinders.	Officers after exertion, urine scanty, saturated, containing uric acid, gravel.
Marcacci	L'Imparziale, May 12, 1878	Young physician (self)		None	Albumin absent from night urine; present in day; increased by exercise. [peared by rest.
Rooke	British Med. Jour., Oct. 19, 1878.	Young woman, 14 to 16			Intermittent; none in morning; always at night; disap-
Kinnicutt	Arch. of Med., 1882.	Young persons		None	Transient; some associated with high specific gravity; uric acid, oxalate of lime; arterial tension low.
Simmons	Sacramento Med. Jour., April, 1887.	Young physician		None	Cyclic; none in early morning; concentrated, four years' standing; now absent; oxalate of lime, uric acid.
Canfield	Philadelphia Med. News, 1887	Man, aged 32		None	Cyclic; none in early morning; maximum at 8 A.M. and in evening; well.
Klemperer	Deutsch. Arch. f. klin. Med., xii. (as quoted by Canfield.)	Student			Cyclic; maxima nearly as above. [albumin also.
Stokes	Lancet, March 10, 1888			None	Four years; lithiasis from beer; when lithiasis abates
Stokes	Lancet, March 10, 1888	Athlete			Albumin twenty years; now prostatic and cystic trouble.
Ralfe	Lancet, ii, 1886	Man		None	Albumin six years; urine pale, abundant; density high, much pigment.
Fergusson	British Med. Jour., ii, 1878.	Youth of 17		Not mentioned.	Albumin five years; puffiness of eyelids.
Rendall	Thèse de Paris, 1883			Very rarely	Albuminuria from digestion (hematogenous).
Engel	New York Med. Rec., Oct. 1882.	Several young men		None in those which mention'd	Occasional albuminuria after unusually heavy meal.
Engel	New York Med. Rec., Oct. 1882.	Two young men		Present.	Later symptoms of renal disease more marked.
Merklen	Med. Press and Circular p. 7, 1885.	Young man, 16 (symptoms acute)		None	Rather weakly; albumin from noon to midnight; more in night.
Fischl	Deutsch. Arch. klin. Med., xxix, 217.	Patients mostly with gastric or hepatic colic, jaundice.	10	None	Albumin temporary.
Fischl	Deut. Arch. klin. Med., xxix, 217.	Metrorrhagia, collapse	4	Few	Albumin temporary.
Ball	Nordiskt Archiv	Physician, aged 27			Continued at least two years.
Kinnier	N. Y. Med. Rec., June 19, 1886	Young men	3	None	Albumin during middle of day.
Coupland	Lancet, July 10, 1886	Girl of 16		None	No albumin in morning; later, irregularly present; no crystals of uric acid or oxalate.
Fox	Lancet, Dec. 12, 1891	Man, aged 31		On second examination.	Albumin constant; re-examined after two years; casts found; health apparently excellent.
Fox	Lancet, Dec. 12, 1891	Man, aged 60			Albumin occasionally for 17 years; casts sometimes.
Tiemann	New York Med. Jour.	Males under 21	186		Albumin in fifty-one cases, 27.5 per cent.
Brannan	New York Med. Jour.	Man			Albumin without renal disease; used to eat three raw eggs in morning; eggs stopped; albumin disappeared.
Edes	See text	Young woman		A few, mostly hyalin.	Albumin first found thirty-one years ago after puerperal convulsions; from time to time ever since a trace of albumin and casts.

[2] In a later article (Lancet, 1891, Vol. ii, pp. 1327-1382), Dukes remarks that these cases are much influenced by posture. Albuminuria occurs after standing. Also, these persons liable to faint on standing.

Society, N. S., Vol. iv. p. 203, Hartford, 1888, concealed under the highly descriptive title, "Matters of Professional Interest." This covers many thousand cases.

2. The more or less persistent presence of albumin is always of importance enough to call for a minute and careful search for other symptoms, but if these are not found in such a way as to decide the question, there has been a good deal of difference of opinion as to how seriously this one standing alone should be taken. This point is especially to be emphasized in reference to life insurance, that is as to the remoter prognosis.

Most authorities who have had the opportunity to study the subject from that point of view are quite clear that albuminuria constitutes a decided objection to a risk, although their own statistics, as well as the general experience, proves that there are many albuminurics, by the ordinary tests—that is, tests about as delicate as heat—who are in no immediate danger of chronic nephritis of sufficient intensity to give rise to any other symptoms for many years. In the face of the facts that in the vast majority of cases and under normal circumstances, no albumin whatever detectable by heat escapes by the urine, and that when it does so, some slight departure from normality may usually be found, and that when persistent there is in nearly all cases a deterioration of the general health (Munn, Dukes, Brannan), it is safe to say that albuminuria always means some trouble with the kidneys. Whether in all cases it has a right to the dignity of nephritis, is largely a matter of nomenclature.

We are originally furnished with perhaps twice as much renal tissue as is sufficient to take care of the excreta which normally pass in this direction. There is no disturbance of the balance of health until the secreting power is reduced, either by loss of substance or loss of function, or unless on some special occasion the demands upon it are considerably increased. Thus it is perfectly possible that there may be some portion of the structure sufficiently damaged to let through a small portion of albumin without affecting the rest of the kidney, just as there may be, for instance, a few specially irritable regions in the nasal passages or in the colon which secrete more than their normal amount of mucus without impairing the functions of the remainder.

The observations of Munn (Medical Investigation in Life Insurance) showed that among the albuminuric candidates for life insurance the percentage of mortality was considerably above the normal, and that they all exhibited, after a lapse of time, a falling off in complexion and general appearance. Clement Dukes (*Brit. Med. Jour.*, Nov. 12, 1881, and *Lancet*, Dec. 12, 1891), who has for years given attention to the albuminuria of adolescence, is far from regarding it with indifference and has on at least one occasion

TABLE III.—ALBUMINURIA AMONG THE SICK.

Author.	Reference.	Class of cases.	Number examined.	Albumin found.	Per cent.	Remarks.
Saundby	Brit. Med. Jour., May 10, 1879	Out-patients	145	105	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Private patients	150	36	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Indoor infirmary	150	74	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Outdoor infirmary	100	19	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Sick children	50	7	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Fever hospital	50	33	...	
Stewart	Brit. Med. Jour., Oct. 15, 1887	Maternity	25	18	...	
Kleugden	Arch. f. Psych., 1880-81	Male epileptics	33	13	...	
Kleugden	Arch. f. Psych., 1880-81	Insane	60	11	...	
Capitan	Inaug. Thèse	Various diseases, mostly acute	?	Large number	...	
Van Noorden	Deutsch. Arch. f. klin. Med.	Surgical and ophthalmic cases	112	...	31.3	
Brannan	N. Y. Med. Jour., July 4, 1891	100 consecutive male patients	100	...	5	
Stone	Boston Medical and Surg. Jour., Sept. 22, 1898.	Female out-patients aged as follows: 15 to 20	98	31	31.6	
		20 to 30	418	96	22.8	
		30 to 40	298	66	22.1	
		40 to 50	238	54	22.7	
		50 to 60	141	37	26.2	
		60 to 70	49	13	26.2	
		70+	6	1	16.6	
Stewart	Am. Jour. Med. Sci., Dec. 1893	Nephritis (?)	...	0	...	Casts found.
Stewart	Med. News, April 14, 1894	Nephritis (?)	...	0	...	Casts found.
Edwards[3]	Am. Jour. Med. Sci., Oct., 1898	Nephritis (?)	...	0	...	No casts; no decrease nor increase of urinary solids.

[3] Refers to many authors who speak of the absence of albumin.

TABLE IV.—OPINIONS.

Author.	Reference.	Remarks.
Gull	Guy's Hospital Reports, xxii (reported by Moxon).	Albuminuria as common as spermatorrhea.
Johnson	Brit. Med. Jour., Dec. 13, 1879	Latent albuminuria means serious trouble.
Teissier	Lyon Méd., 1887.	Subjects of cyclic albuminuria; probably all destined to goutiness.
De Haviland Hall	Lancet, Feb. 18, 1888	Albuminuries should not be assured.
Pye-Smith	Guy's Hospital Reports, Vol. xix	No person who has albuminous urine (by usual tests) can be considered eligible for life insurance
Brannan	New York Medical Journal, July 4, 1891	Derangement of function will sooner or later end in structural change in kidney.

TABLE V.

	Accidental.	Neurotic.	Irritative.	Asystolic.	Chronic parenchymatous nephritis.	Chronic interstitial nephritis.	Subacute nephritis.	Cerebral disease.
Daily quantity of urine.	Normal.	Increased.	Diminished.	Diminished.	Diminished.	Increased.	Diminished.	Increased.
Specific gravity.	Normal.	Diminished.	Increased.	Increased.	Normal or increased.	Diminished.	Increased or little change.	Diminished.
Albumin	Varies in different cases; only occasionally present, perhaps.	Small amount	Small amount.	Varies	Much	Mod'rate, none sometimes.	Moderate.	Small amount.
Casts	None or a very few hyaline.	None or a very hyaline.	Few	Few or many; hyaline and granular.	Many of all kinds.	Hyaline, epithel., granul'r	Hyaline, epithelial, gran.	Very few.
Other sediment.	Not important	Not import'nt.	Uric acid, oxal. of lime, ep. stained with bile pigment blood?	Urates	Urates, epithelium.	Uric acid? or not important	Epithelium, urinary salts.	Not import'nt.
Arterial tension	Normal.	High	Normal or high.	Diminished.	Diminished.	Increased.	Not much changed.	High.
Dropsy.	None	None	None	Lower limbs	General	Face, feet and shins.	Slight.	None or very slight.
Eye ground	Normal.	Normal.	Normal.	Normal or hemorrhages.	Album. retinitis, but less comm'n than in next.	Albuminuric retinitis, hemorrhages.	Sometimes lesions, which disappear.	Optic neuritis.

recognized in a college student, applying to him for more advanced renal disease, one of his former albuminuric boys. He says: "The cases of early albuminuria, so common in the young, constitute the early stage of what may eventually become developed into that chronic disorganization of the kidneys termed Bright's disease."

One of the most striking illustrations of the fact, that while albuminuria may be an exceedingly chronic symptom, it is not to be considered as without significance may be found in the history given by Dickenson of an old family in which this symptom has been known to exist for at least four generations, while the family portraits seemed to him to give strong grounds for the suspicion that it extended back to a time when it was not sought for in the urine, but revealed itself by the complexion and general appearance to the experienced eye of later physicians. Most of the persons affected died at a comparatively early age, and in one case the kidney examined and reported in connection with Dickenson's paper was clearly in a condition of chronic nephritis. (Trans. Path. Soc. London, 1888-89, xi, 144.)

3. The distinction between acute nephritis and the forms of chronic renal degeneration more distinctively known as Bright's disease without any prefix, is too obvious not to have been at once recognized. The relationship between them was also well understood, so that although it was known that the acute might give rise to the chronic form it was by no means necessarily so, any more than it was usual for pneumonia, for instance, to cause consumption, although such a thing might, under specially unfavorable circumstances, occur. But there seem to be cases between the two where the duration is distinctly too long and the intensity of the symptoms too slight to be considered acute, and on the other hand, do not deserve the inevitably fatal prognosis supposed to be connected with the diagnosis of Bright's. When a case of this kind recovers—either absolutely or relatively—it may be claimed on the one hand by the therapeutic optimist as a "cure of Bright's disease,"

or may be, on the other, belittled by the skeptic as only "an acute case which was rather slow in getting well."

4 The knowledge of the extreme chronicity, as well as the insidious origin, of well-marked Bright's disease could only be acquired by the lapse of time, and many instances of so-called mistakes are due to this fact rather than to any error in diagnosis, properly speaking. A very interesting case is reported by Francis Hawkins (Trans. Clinical Society of London, 1892-3, xxvi, 216), of a medical man who had consulted Dr. Bright himself, and had been told by him that he had renal disease, and that death was inevitable within two or three years. He gave up his London practice, but died forty-three years later of cerebral hemorrhage. Stories of this character are apt to be told of many distinguished physicians, who see in their consulting practice a large proportion of cases that are difficult and obscure. They naturally contribute greatly to the comfort and hilarity of the laity. In the present one Dr. Bright may have been perfectly correct in his diagnosis and failed so signally in his prognosis, because he was necessarily unaware of possibilities now familiar to all. The time that has elapsed since the practice of searching for urinary symptoms in cases—other than those where it is absolutely forced upon us—has become a common one, has taught us many things that he could not have known. Such cases show what we are finding out more and more in regard to many diseases, that an experience based on the hospital and deadhouse, which represent almost entirely the last stages of chronic diseases, is not trustworthy as the sole guide in general practice.

A young woman had post-puerperal convulsions in September, 1867. Soon after and for a year later albumin was found in the urine. She was confined again in 1870 and in 1871, the children being sickly. Subsequent examinations of which I have notes are as follows, and I have a strong impression that there were others of the same character:

November, 1874. Albumin and casts, medium-sized, granular and one or two small hyaline. April, 1878. Considerable albumin; small hyaline casts. September, 1887. Large trace of albumin; one cast. September, 1898. S. G., 1016; perceptible opalescence on boiling; slight cloudiness with picric acid; no perceptible line on underlying with nitric acid; several small hyaline casts. In 1887 she called to see me, and again in 1898, and is in fair health.

It certainly appears more probable in a case of this kind that some small local lesion has remained the same without extension to surrounding tissues, than that any general deterioration either of blood, of arteries, or of renal structures has withstood the shocks of subsequent pregnancies and the wear of thirty years without impairment of the general health.

On the other side of the albumin question, i.e., with reference to those cases of decided nephritis which have been for many years known to exist, where albumin is temporarily or even for long periods absent from the urine, they only emphasize the importance of inquiring in regard to *all* the symptoms in *every* case. Equal or superior in importance to albuminuria, comes the presence of casts, and then the quantity of urine and its solid constituents, condition of the heart and arteries, edema, nausea and anemia.

Several elaborate articles, based on a careful study, not only of the more obvious symptoms, but of the chemic constituents of the urine for twenty-four hours, have recently appeared by Stewart (*Am. Jour. Med. Sci.*, December, 1893; *Med. News*, April 14, 1894) and Edwards (*Amer. Jour. Med. Sci.*, October, 1898). The first named of these authors seeks to establish a special form of nephritis on the basis of absence of albuminuria. It seems very much like the "renal inadequacy" of Sir Andrew Clarke. In all of his (Stewart's) cases casts were found, but he seems to lay special stress in his diagnosis on the deficiency of both water and solid constituents in the twenty-four hours' urine. Of this it may be remarked that he has set his normal standard very high (35 gm. of urea) and, what is of perhaps more importance, there is little reason to suppose that such soluble and highly diuretic substances as urea and chlorid of sodium fail to appear in the urine in sufficient quantity on account of any structural difficulty in passing them through.

A comparison of cases of renal atrophy from hydronephrosis or renal calculus shows how small a remnant of secreting structure is sufficient to filter through large quantities of water, presumably carrying with it such salts as are very easily soluble therein. This condition of things points much more strongly to a deficient metabolism, which is a pathologic condition, but has no necessary relation to the kidneys in particular, except from the fact that its products happen to come through those organs. It may indicate to the shrewd observer one of the directions in which danger may be anticipated, but it is not nephritis.

If, in such a case as is reported by Edwards, nephritis is suspected when there are "no suggestive cardio-vascular findings, no albumin, no casts, no decrease in total solids, specific gravity or quantity," no edema mentioned, and this possible diagnosis is confirmed by the autopsy, we can only congratulate the physicians on their acuteness and feel that when a diseased organ presents absolutely no symptoms of abnormality in its products, and no evidence—except so very indefinite a one as nausea—of impaired function, nobody but a clairvoyant can be blamed for overlooking it. The "prealbuminuric stage of Bright's disease" of Mahomed and some others should be described rather as "a condition of the system, and in particular of the arteries, of which nephritis is one among several possible results."

The significance of a very small number of casts can not be quite so distinctly defined as that of a quantity of albumin determined by some standard test, because so much depends upon the skill, the luck, and especially the patience of the observer. If the painstaking method of Haines and Skinner (*l. c.*) is followed, we can be reasonably sure that no casts have escaped us. It is possible that after this method has been in use for some time we may find that they are as common as excessively small quantities of albumin, in which case the symptom must cease to have any great value, unless the chief weight is laid upon their character rather than upon their mere presence. If, however, we adopt a less rigid and more convenient standard, that is, the examination with a low power of several drops of sediment from urine that has stood for a number of hours without decomposing, or obtained from the centrifugation of a considerable quantity, we stand on about the same level of accuracy with the heat test for albumin. Most statistics are not very trustworthy as to determining the importance of the finding of casts under these conditions, as there is no guarantee for even the degree of thor-

oughness just described, but there is no doubt that casts are often found in small numbers when they do not greatly add to the gravity of the evidence afforded by small quantities of albumin. So that now opinion is changing in regard to them, somewhat as it has already done in regard to albumin, and there is danger of their signicance being overlooked or underestimated.

Two important limitations should be made. The casts, or so-called casts, of irregular outline and longitudinal striation, often tapering off into a tail at one end, and named, probably correctly, "mucous," are of no consequence whatever, or, at the most, if numerous, are significant only of a certain amount of superficial irritation of the kidneys. They may, however, occasionally deceive an inexperienced observer. True casts may be divided into two chief classes: the small and medium hyaline, which are probably formed in the caliber of tubes which retain their epithelium; and the larger sized ones which contain, or are chiefly composed of, epithelium more or less degenerated; and also more homogeneous ones which are apparently formed in tubes from which the epithelium has been shed. The second class can often be found at the autopsy *in situ* in kidney undergoing various forms of degeneration. They signify parenchymatous nephritis and by their number and character, give important information as to the extent and progress of the lesion. They are naturally of much more serious import than the small hyaline ones carrying now and then a cell. The large casts formed by solid masses of degenerated cells molded in a tube previously denuded of its epithelium or of which the lining forms the outer layer of the cast itself, and those solid ones with a sharp outline, frequently bearing the marks of a more or less complete resinous fracture, are of the most unfavorable significance, but are not often met with until the question of diagnosis has long ceased to be the most interesting one.

Shattuck (*Boston Med. and Surg. Jour.*, 1894, cxxx, 613) has had many examinations made for the purpose of determining the frequency of casts, especially in persons of advancing years, and finds them more common as the patients are older, and not to be closely connected with other symptoms of renal disease, nor of special unfavorable import in such persons. This observation, however, is far from proving them of no significance, but shows simply the fact that there is always a reserve of renal structure and that if its destruction goes on slowly it may be years before that reserve is exhausted. The renal atrophy may be merely keeping pace with a diminishing call for activity of function dependent upon a less active metamorphosis of tissue. It corresponds to the post-mortem observation of a narrow zone of atrophy just underneath the capsule, dependent upon a chronic interstitial nephritis, which has not destroyed any large proportion of secreting structure.

Mitchell (*New York Medical Times*, xxiii, No. 7, p. 201, July, 1895) has examined his records of persons whose condition was known for seven years after albumin and casts have been found. He concludes: "Where casts are found, together with albumin"—he used heat test—"the mortality is nearly three times as great (30 per cent.) as in the non-albuminous cases (11 per cent.), and more than twice as great as in those who have albumin without casts (14 per cent.)."

A part of the difference between the non-albuminuric and the simply albuminuric cases was thought by Mitchell to be attributable to "accidental albuminuria," but in the presence of a microscopic examination that can hardly be of much importance.

It is only in the early stages and in regard to the preliminary questions that the albumin and casts are to be consided separately. In the permanent presence of albumin it is not safe, so far as most observations go, to assume the absence of casts because they are not mentioned, and on the other hand it is certainly not usual to find casts without the presence of a trace of albumin.

It is safe to say that the presence of albumin by the ordinary tests is proof of some disorder in the glomeruli, either as to blood pressure or soundness of epithelium or both, and that casts, according to their structure, either exudative or degenerative, prove disorder of the epithelium lining of the tubes, whether merely irritative or amounting to total disorganization. How extensive or how slowly progressive these changes may be is another step in the diagnosis, but they are never strictly physiologic, except in the sense that normal and natural reactions to abnormal conditions may be called so.

A condition which very frequently accompanies one form of nephritis—so frequently, indeed, that it has placed its stamp thereon and almost withdrawn it from the category of simple local inflammations, making of it a constitutional disease—is the high arterial tension. So early is it that Mahomed used to speak, not only of a "prealbuminuric stage of Bright's disease," but of "Bright's disease without nephritis." But this also fails of pathognomonic significance in the absence of the two symptoms just under discussion.

The sphygmograms of many cases of neurasthenia closely resemble those considered as characteristic of intestinal nephritis, that is, of an arterial pressure continuing high through too long a part of the diastolic interval, and indicating too great resistance to the passage of the blood in the distal portion of the circulation. The absolute pressure in the neurasthenic cases is probably less in the average than in the true arteriosclerotics, but the opposition to the escape of the blood through the arterioles is such in proportion to the force with which it is thrown into them, that a tracing is produced, similar in form, though often lacking in amplitude. This condition, as I have observed in many cases, is in no way a precursor of chronic nephritis. (*Boston Med. and Surg. Journal*, May 19, 1881 and July 18, 1895.)

Many years ago I took some tracings from members of a medical club, among which were two which would, I think, by any one who had given attention to the subject, have been considered highly characteristic of chronic interstitial nephritis. One of these confréres died three years afterward, not of interstitial nephritis, but of interstitial hepatitis. The other, after practicing for many years longer, gave up finally on account of sciatica and the infirmities of age, and died at 85, never having given any signs of nephritis.

On the other hand, although the usual conception of the nephritis and the high arterial tension as two, perhaps equally important, parts of a common morbid condition, is applicable to the great majority of cases, yet it is probable that in some the arterial and cardiac lesions are distinctly the result of a nephritis of purely local origin.

I recall the case of a boy with atrophy of the kidneys, evidently dependent upon obstruction in the

urinary passages, as shown by dilatation of the ureters and trabeculation of the bladder, who had a heart pronounced by competent authority to be hypertrophied, a condition for which there was nothing to account except increased arterial tension, which had not, however, been observed during life. There had been peculiarities of micturition, although after death there was no obstruction to the passage of an instrument through the ureters or urethra in either direction.

It is my belief that the origin of many cases of interstitial nephritis in young persons, where no other sufficient cause is to be found, might be successfully sought for in some difficulty of micturition, often functional, dependent upon irregular and incoördinated muscular and nervous action. (See *Bechterew. Neurologisches Centralblatt*, Sept. 15, 1898.) This may have been so slight as to escape serious notice but yet sufficient to set up a back pressure in the ureters and kidneys which would lead to hydronephrosis and atrophy. (*Medical News*, Aug. 10, 1899.)

The fact, now well known, that a man who has albumin in his urine is not thereby doomed to an early death, and the later statistics of Shattuck and Mitchell confirmed by many isolated observations, showing a similar significance as attached to casts, are likely to lead to false conclusions if they are taken to prove that these positive and distinct conditions are without important meaning. A marked change in either direction in the daily quantity of urine, as determined by actual measurement, is of great value as a symptom, but an excess or especially a diminution in comparison with the average usually stated as normal, should not be too hastily referred to renal derangement. In fact, in the early and doubtful stages, to which this paper chiefly refers, the kidneys are fully able to take care of all the water, urea, and probably all the other soluble salts, brought to them in the blood.

Pollakiuria or frequency of micturition, especially at night, although it should call for a careful examination of the urine, may be entirely unconnected with any disease of the kidneys or even of the bladder, being often of purely neurotic origin.

The amount of urine is influenced by many circumstances beside the condition of the kidneys: the vascular tension, which, as we have seen, is not necessarily connected with nephritis, the activity of the skin and bowels, probably the dryness of the surrounding atmosphere, and in particular the habits of the patient as regards the quantity and diuretic quality of liquids taken. A considerable diminution in the daily amount of urea excreted does not signify that the kidneys are inadequate to cope with it, but that for some other reason the metamorphosis of nitrogenous tissue is diminished. A copious flow of pale urine of a specific gravity below the normal average will for months or years carry off all the urea formed.

How far this applies to other substances less abundant, less diuretic, and less well known; perhaps to some others formed only under pathologic conditions, is not so certain. The presence of autogenetic poisons as the cause of many symptoms in renal disease is one of the interesting questions yet to be answered by the physiologic chemist and clinician together. There are grounds for suspecting the uric acid group and some coloring matters, but the proof against them is not conclusive. The ordinary urates are not so bad as they look.

PRECORDIAL AREA IN CHILDREN.

Presented to the Section on Diseases of Children, at the Forty ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY H. B. WHITNEY, M.D.

DENVER, COLO.

At the Pan-American Congress in 1893, I presented a paper on "The Normal Precordia in Infancy and Childhood," and this paper was afterward published in the *Archives of Pediatrics*. Subsequent observation has not changed the views expressed at that time, nor have I anything to add to them. I shall, therefore, merely give you the briefest possible résumé of the original paper, my present purpose being to mark out the precordia in a few children of different ages, and invite criticism of the results obtained.

I have ventured to bring up this subject again because, in the first place, I regard the question of the normal precordial area as of the greatest practical interest and importance; and if my observations have been correct, it seems to me desirable that the facts should be universally accepted. In the percussion of the heart we are dealing with a measurably constant and unvarying quantity; our results ought to be proportionately reliable. I am aware of the great differences of opinion which have always prevailed in regard to the precordial area, and these have been so divergent as to produce in some the conviction that anything like unanimity of opinion is hopeless; that differences of method and skill will always make percussion of the heart a purely individual matter. I can not take this pessimistic view. To me there is nothing in physical diagnosis more definite and more certainly ascertainable than the normal area of precordial dulness. I am, therefore, hopeful that a practical comparison and discussion of methods may at least further an agreement among those who are here present.

Hitherto no text-book in pediatrics has done more than state in a general way that the precordia of infancy and childhood is enlarged. Weil emphasized the fact in 1879, but made no distinction as to age. Other writers since Weil have simply repeated his statements. I will give, in illustration, only a short paragraph from that latest and most admirable book on pediatrics, "Holt's Diseases of Infancy and Childhood:" "The outline of the area of relative cardiac dulness, *especially in small children* [italics mine], is proportionately larger than in adults. . . . According to Sahli, the limits are as follows," and then limits are given, corresponding precisely to those originally found by Weil, and to those which I shall attempt to demonstrate at certain ages. This persistent reappearance in the text-books of the old and, according to my conviction, incorrect statements, is the second reason why I again call your attention to my former paper.

The gist of my own observations may in a word be stated as follows: 1. Up to the age of 5 years the precordial area is not perceptibly enlarged, but corresponds practically with that of the adult. This statement concerns mainly its right border, which in the adult is a perpendicular line corresponding very nearly with the *left* border of the sternum. 2. From the age of 8 years up to and considerably beyond the age of puberty, the normal precordia differs markedly from that which is found in earlier life. Its right border now extends a half inch or even more beyond the *right* sternal margin; while the upper border is

in the second interspace, and toward the *left* the precordia extends one-fourth to one-half of an inch beyond the mammillary line. 3. During the fifth, sixth and seventh years, conditions are inconstant. The enlarged precordia of childhood may be found even in the fifth year, but is decidedly the exception In the sixth year it is much more frequent, in the seventh it occurs in the majority of cases, while in the eighth year, as before stated, it becomes a consant and, in my experience, unvarying find.

As to method of percussion: It is presumed that the stroke is light, or at most moderate in force. My results have been always obtained with the fingers alone; I have never used a plexímeter. In percussion of the right heart, I have always laid special emphasis upon the note obtained over the upper and lower halves of the sternum as compared with each other. If the sternum is everywhere equally resonant, I fail to see how any enlargement of the heart toward the right can be affirmed, except in cases where there is some abnormal condition of the upper mediastinum. If, on the other hand, the lower half of the sternum is duller than the upper half, such dulness can be attributed only to the precordia; a view which may always be confirmed by more careful delineation of this dull area toward the right.

With these brief preliminary remarks, I beg leave to show you several presumably healthy children of different ages, in whom I have marked out the precordial area.

DISCUSSION.

Dr. J. N. HALL, Denver—The doctor has asked us to point out any errors which we see in his method of percussion. I am glad that I have little to say in the way of picking to pieces his results. I think, however, the matter demonstrates several things outside of percussing the chest. It shows us there is room for us to learn something about even a matter thought to be so well understood as percussion. I do feel, however, the Doctor makes one point rather too strong, that is, that the question of cardiac area can be established, That is a matter perhaps, upon which the greatest variation exists among physicians, and concerning which our opinions must vary as long as our methods and ears vary. By the man who does his percussion with the whole arm, using the hand as a hammer, such an area will not be marked out. But now many more are using the finger in percussing than formerly. Three times in my experience I have seen chests absolutely full of fluid. In one case a diagnosis of advanced phthisis with impending death was made some years ago, and the man is now working on the railroad. In those cases the physician did not percuss properly. We may judge of what is beneath by the feeling of the finger as well as by the sound. Illustrating this matter further, I will say that some two or three years ago a physician applied to me to ask whether I considered his cardiac area enlarged. I told him I thought it was somewhat enlarged. Another physician examined him and said he believed it was normal. Six gentlemen, some of them of prominence, examined his heart; three said that it was normal and three that it was slightly enlarged. As long as our opinions will vary in that way we can scarcely say that the matter of percussion is one of absolute accuracy. As long as we have the lung causing different shades of sounds, we will certainly have some room for discussion as to the absolute area of dulness in any heart.

Dr. JOHN H. MUSSER, Philadelphia—There is no department of physical diagnosis that is more difficult than that which attempts to determine the size of the heart by percussion. It is one that I have been working at constantly for a long time and I am not yet satisfied as to my ability to positively state the size of the heart. In fact, I do not believe any one can state the size of the heart. We can state the relative and absolute areas of dulness. However, to me, the matter has been of such extreme difficulty that I am always glad to learn from others their methods. If I understood Dr. Whitney right, in early life the right border of the cardiac dulness extends to the left edge of the sternum.

Dr. WHITNEY—Approximately.

Dr. MUSSER—Then it extends to the right border later on?

Dr. WHITNEY—It increases with the age of the child.

Dr. MUSSER—I am satisfied that in children the area of cardiac dulness is farther out than we have been taught in the text-books. Even half an inch beyond the right edge of the sternum may be considered normal. The varying size of the heart and the changes in respiration are the factors which make it so difficult to indicate by percussion the size. I refer to the varying size of the heart with systole and diastole. Hence one must percuss constantly and under various circumstances, and not with one method but with various methods, if possible, as control investigations, and even then one can not but fail often to satisfy himself as to the size of the heart. I have felt this difficulty so much with the ordinary methods of percussion, in which I rely more upon the pitch than anything else, that I employ also the method of tapping the chest with the finger and rely upon the vibrations. I also use auscultation. But I have found good results from palpatory percussion. I compare that which I get from the various methods with the child in the upright as well as in the recumbent position and also in full inspiration and full expiration. Then I feel that I can come to some conclusion as to the size of the heart. But the very fact that we have to go through so many measures, and the very fact that the heart is so variable from its action and respiratory movements, leads us to believe that our present methods are unsatisfactory. I am quite sure that palpatory percussion is familiar to you all; yet, probably it will not be amiss to say that it is simply using the finger, with which you can feel resistance. In fact, in this case, I would say the line, if anything, is a little above where Dr. Whitney has indicated. We percuss down the mammary line until we get to the liver dulness, and then by percussing we find a line about the fifth rib that turns off to the sixth rib and marks the cardiac dulness. All these various methods of examination should be used, and even then you will come back in half an hour and find that you are an eighth or a quarter of an inch out. I am very glad to have heard Dr. Whitney's method. It is the only way we can expect to get anything—by hammering away. I am satisfied the question will be settled with precision before very long.

Dr. BABCOCK—I do not feel at all qualified to make comment, but would desire only to raise two or three points or queries which have suggested themselves to me: 1. Can the latitude at which the Doctor makes his observation exert any influence upon this matter? 2. Can the history of the child make a difference? We know that pericaditis in children is a much more frequent disease than is recognized, and pericardial adhesions may exist which are never recognized. The question has suggested itself to me whether in any of these children, for instance, there can be a history of some previous disease in the course of which a pericarditis leading to subsequent adhesions might have been present and yet not recognized. We know that when an adherent pericardium exists it may not give rise to any signs, and yet it does materially influence our findings as to the size of the right heart. 3. The query arises as to whether it makes any difference, in the percussion of a child's heart, whether it is done soon after a meal or when the stomach is empty. The heart is a very movable organ and I would like merely to inquire if it is possible that the stomach of a child soon after a meal might, by a pressing upward of the diaphragm, raise the apex of the heart sufficiently to cause the heart to assume more of a horizontal position, and whether

this might not deceive one in his observation on the precordial dulness of the child? In the cases presented here this morning, those from 8 years upward certainly presented a very different note along the sternum, and the Doctor certainly has demonstrated his claim. Whether in the younger ones there is a slight though sufficient difference to determine that the precordial area is larger than the Doctor supposed is a matter perhaps of individual difference.

Dr. A. C. COTTON, Chicago—It seems to me that perhaps the most instructive part of the clinic today is the point that I would like to make in regard to auscultation, namely: the importance of the personal equation in all of these cases. Here we have acknowledged experts, yet I venture to say that if each one were asked to make a diagram of the area of cardiac dulness, we might have as great a variety of diagrams as we have of examiners. Dr. Whitney, himself, in demonstrating the area of dulness, observed that the blue line in one case did not correspond with the area of dulness. Dr. Musser tells us that he sometimes finds the area of dulness has moved a fraction of an inch in a comparatively short time. Every one who has attempted percussion knows that much depends on the pressure of the finger. Condensation of tissue under pressure will easily give a note that is readily demonstrable. A very nice experiment is to have each one in a clinic examine the area of dulness, and cut a pattern, and then compare the patterns. It is very astonishing the different patterns you will get, and not only from novices either. That there is much difference in this respect I think everybody will admit. When Professor Babcock tells us that he finds an enlarged area of dulness, I take it that means to him, and that there might not be an enlargement of the area of dulness to Dr. Whitney or somebody else. So it seems to me this personal equation will always stand between the different examiners.

Dr. ROSA ENGLEMAN, Chicago—Perhaps it would be better if more of our observers gave us observations as to physiologic and anatomic peculiarities in children as compared with the adult. That is a study in which too little is done. It occurred to me also that the individual factor as related to the children might play a part in this matter of percussion; or, as Dr. Babcock has also intimated, perhaps disease. I noticed in one case the chest showed the child was decidedly rachitic, and that might interfere with the normal growth and development of the heart. Enlargement in the area might be due to the development at this age, especially between 7 years and puberty. The difference, is not so appreciable between the ages of 1 and 7 years as between perhaps 7 and 12 or 13. I think these are factors that have to be taken into account in this anatomic and physiologic study of the heart of children.

Dr. HERBERT B. WHITNEY, Denver—In regard to Dr. Fischer's question, my idea was to bring up the question of percussion, which alone is used in determining the size of the heart. It is a question, when there is an increased area, whether we could judge that the heart was enlarged. The precordial area obtained by percussion has very little to do with the size of the heart. I thank Dr. Babcock very much for his suggestion in regard to the distention of the stomach. I think that may have much to do with the fact that I found over the lower part of the sternum at the fifth year a note, which is, it seems to me, as good if not better than over the upper part. The remark about rachitic cases, by Dr. Engleman, is a good one. I have rejected some rachitic cases because the dulness always extends beyond the sternum. In closing, I want to say one word in regard to the question of resonance in the fifth interspace in cases of pericardial infusion. I have been associated with Dr. Rotch in this work, filling the heart with water and percussing it. I have found that I can not feel that the Doctor is correct in that. I have examined a great many cases of pericardial effusion and enlargement of the heart, and I have come to the conclusion that, as far as my experience goes, in those enormous hearts that extend far over to the right, in which there is some difficulty in distinguishing it from a pericardial effusion, we find dulness everywhere; sometimes absolute flatness extending over to the right of the sternum. How one can make a differentiation between pericardial effusion and enlargement of the heart in that way is beyond me. I have not been able to do so.

A STUDY OF THE HEART AND CIRCULATION IN FEEBLE-MINDED CHILDREN.

[PRELIMINARY REPORT]

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY J. MADISON TAYLOR, M.D.
AND
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In the Transactions of the American Academy of Medicine (Vol. ii, pp. 164 to 189) for 1895 the writers considered the "Causes of Mental Impairment in Children," and the "Causes of Imbecility and Idiocy," the "Varieties of Idiocy," and "Pathology of Idiocy," respectively.

Since that time a study more particularly of further somatic changes in the mentally feeble children has been continued, and we have carefully gone over the records of the 532 cases reported in the above communication, with the object in view of tabulating systematically the results obtained as to the "Heart and Circulation in Feeble-Minded Children." In feeble-minded children a large proportion are of defective development in other organs.

A large amount of new material accumulating through our own further studies, and in reports kindly made by physicians in charge of institutions for feeble-minded children, both public and private, have added much to the statistical value of our records, which will be recorded *in toto* and presented in the near future.

It is here intended to make an elementary report to preface the elaboration which will be followed by a fuller compilation.

Heart in feeble-minded children.—Arhythmia is a notable feature in about half the cases, and especially so in proportion to the aberrant forms, as the Mongolian type of idiot. Intermittent heart we noted but seldom, and indeed in our experience it is more associated with functional disturbances than with organic (brain) changes, as though inhibition overflow mechanism was always at work in varying degrees in the mentally feeble. Thus some sort of pulmogastric stimulus always persists; whereas in functional brain or heart disturbances nature seems to be able to afford complete silencing of the myocardium, again to proceed undisturbed. This also seems to be the case with the ill innervated papillary muscles, for transient, shifting, precordial murmurs not transmitted can, we think, not be explained on any other physical basis, and true organic murmurs are not common. Cases illustrating this phenomena will be detailed in the future work.

Tachycardia occurs in 50 per cent. of imbeciles, depending much on the degree of brain capacity and type of case—more marked in idiot savants and in microcephalic idiots.

Brachycardia is not an unusual phenomena, and occurs more in hydrocephalic, slight cerebral pressure cases, and in the sporadic cretin, in which latter the use of thyroid has increased the pulse-rate perma-

nently, along with the bettered mental and physical condition of the child.

Increased area of precordial pulsation exists in about one-third of the cases of imbecility, in one-half of which the hypertrophy is not sufficient to account for, and, we take it, must be due to transmission of unharmonious muscle-action, as implied in the above paragraph.

Transient thrills occur in many cases and more at the apex, perhaps—but this is to be further studied—due to close proximity of the apex at the sixth rib to the chest wall.

Transposition of the heart we have not met with, nor of other organs, although considerable shifting without added acute disease. Reason for the same was noted in a marked number and reminded us much of an adult case of a contortionist athlete with sequent bovine heart, in which the subject was able to shift the apex back and forth by extrinsic muscle effort: At autopsy we found a large, fatty heart and pericardial adhesions that might be causative in the shifting by the mechanism above detailed. This case was seen by one of us as interne in the Presbyterian Hospital of Philadelphia, and has been reported by Dr. R. G. Curtin, in whose clinic it occurred.

Bruits in the neck are few and inconstant. The hybrid between functional and organic murmur, as noted above by irregular valve leaflet action, was the principal lesion noted among the patients so far studied.

Pulse seems to follow less closely the result of the cardiac action, as above detailed, less frequently than is known to exist in persons of normal mentality, ruling out any gross cardio-vascular malady. It is not uncommon to detect rapid heart with synchronous pulse—but only temporarily—and the next fifteen minutes perhaps both fast or both slow, or indeed, vice versa.

There is also apt to be much difference between the two radial or two dorsalis pedis pulses—all in fact out of true co-ordination, as may be suspected on thought by the disturbed, ill-made governor—the brain mass of stunted, deficient micro-chemically weakened central neurons.

Conditions of edema are singularly rare, notwithstanding the disturbed and apparently markedly separately acting vasomotor systems, conditions (and of the blood) which demand wider study, as do skeletal conditions in imbeciles.

DISCUSSION ON GASTRIC DISEASES.

Delivered in the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

Dr. CHARLES V. SPIVAK, Denver—It seems to me there is a certain hastiness on the part of the physician, when he comes to a child and finds it suffering from any gastric disturbance, to at once feel himself obliged to feed the baby and to devise some means how the baby should be fed. When a child is vomiting ten or fifteen times a day, the milk or any other food it is given, I think it is absurd for the physician to prescribe any food at all. I refer now to an extreme case of frequent vomiting or diarrhea, in order to take this simply as my point of departure and then we will take a slighter case. In such cases it is absolutely absurd to give the child food. All these artificial foods, prepared from cream and water in all the different ways, are simply due to the hastiness with which the physician advises the parents to feed the baby. When a baby vomits frequently or has a diarrhea, it should not have any food, but its stomach and intestines should have a rest. The parents should be told that a day or two, or even three, of fasting for the baby will do it good and the introduction of food will do it harm. If the baby's stomach and intestines are brought into a better condition by simply fasting, or what I would rather call rest of the stomach and intestines, which is recognized as a therapeutic agent in other diseases; if rest is carried out with other devices for keeping the child at rest, and its stomach and intestines are brought into good condition, I think the food the child has had will do well if it is introduced at first in very small quantities. The first principle is not to overburden the system. So many foods are being analyzed and all that, but it seems to me that is all superfluous if we do not give rest to our little babies. If a baby has proper rest after it has assumed its former condition and can perform its natural functions, and the food is introduced in small quantities, I think this whole question of artificial feeding may be considered entirely superfluous.

Dr. WILSON of Pennsylvania—I want to endorse what the gentleman from Colorado has just said, and to go a little further and say that the most important question that usually confronts the physician in the stomachic and intestinal diseases of children is not what he shall feed them, but how he shall keep them off food. I think that is the most difficult question the physician has to consider. An article written by Dr. McFarland, which was copied in the foreign journals, on the use of hot water, impressed me very much. It is difficult to feed children who have been breast fed hot water with a teaspoon. It has been my custom to take an ordinary bottle, make it absolutely clean, put in some hot water, add some salt and put a nipple on the bottle. I do not take the salt out of the salt-cellar. I have a tablet, which is composed of chlorid of sodium and colored red. It is very attractive. I tell the mother to dissolve this in so much water. It has proven a most satisfactory method, keeping the child on this until the craving of the child for food shows it is in condition to receive food. I have had children whom I have had to wean off the hot water to get them to go back to the milk.

Dr. H. M. MCCLANAHAN, Omaha—We should resort to artificial food where it is necessary. If we commence the care of the mother sufficiently early, there should, as a rule, be no reason why the mother should not nurse the infant, except in cases of disease. In one case, that of a German woman whose child suffered from colic and indigestion most persistently and constantly about twenty-three out of the twenty-four hours, an analysis of the mother's milk revealed about 4 per cent. of cream and 4 per cent. albuminoids. There, in my judgment, was the trouble. After giving the mother a thorough course of the salines, removing the albuminoids, and putting her on proper food, in about a week there was no trouble nursing the child. In the second place, as to the artificial feeding of babies, I can endorse what the gentlemen have said, but we ought to get so we can artificially feed these babies without producing indigestion. We should teach the mothers to feed them so they would not have these attacks. By changing the formula, I think it is an easy and simple thing to get a food that will meet the requirements of a case. I always give the proportions in ounces so the people can understand it. By changing the proportions there should be no trouble. This we can do without resorting to any of the patent foods. I think we should just as well give an adult patent medicines as give the babies patent foods. There are none of them similar to human milk. First, we should get a food that the child will take and digest without suffering. Next, we must get a food that will properly nourish the child. Condensed-milk babies, many of them, get along very comfortably; they get fat, flabby, and always rickety. I have never seen that fail where they were fed on condensed milk exclusively. So it is a question of getting a food that is digestible and that will properly nourish the child—a food that will not only make it fat, but will

velop its muscular and nervous system as well. We should ke a food as nearly as possible identical with the normal man milk when we can not get that. That, I believe, can done without resorting to patent foods. These societies ould condemn the use of patent foods.

Dr. R. B. GILBERT, Louisville—The question of feeding the by when the mother's milk has failed, is certainly one of the st perplexing, especially to a city population, where the w's milk has to be obtained second-hand to a large measure. concur freely with the gentleman who has spoken with refer- ce to overfeeding. The nursing-bottles are ordinarily made hold half a pint for an infant a year old, whose stomach, en considerably distended, will hold only an ounce and a lf or two ounces. Consequently overfeeding is one of the uses of much trouble, even if the milk be wholesome. nother matter it is well to look after is artificial feeding hen the mother's milk fails. Cow's milk or possibly the at's milk may be good, and the mare's milk has been used rgely in some countries, Russia especially, but the cow is a mestic animal in this country from which we get our milk- pply, and her milk may be modified by the addition of a lit- e water and a slight amount of alkaline matter—because it is ways acid, at least shortly after it is drawn—and then secure specific gravity of about 1032. There is much trouble get- ng the milk in the city and also often in the country. The ilk is likely to become infected. Next to the cow's milk my xperience is that condensed milk is the most reli able artificia od; it is certainly the most convenient. It can be obtained small quantities and quickly prepared. The water should ways be sterilized, which can be done readily by boiling. he assertion that rickets always follows the use of condensed ilk is not true according to my experience. You can prevent at by giving the lime salts either with it or by a separate escription.

Dr. WILSON—That is begging the question; a child fed on ndensed milk alone for six months will develop rickets.

Dr. GILBERT—In that I agree with the Doctor. If you will ed a baby on any one food, except mother's milk, for six onths continuously you are apt to have one or another or per- aps several derangements. One derangement you are likely have is scorbutus, which is, I believe, likely to occur where ou use condensed milk. I have seen it in two cases where the ild was fed on Horlick's food. In one case it went on until here was a separation of the epiphysis of one of the bones. e were abstaining from all acid foods from the idea that acid duced scorbutus, but there we went just to the opposise treme and gave scraped apples and fruit juices and all that d the baby got along all right. We should change the food the infant frequently, putting him on cow's milk two or ree months, then on condensed milk two or three months, d I would not object even to Horlick's food. A little chlorid sodium should be added to the baby's food. Where I live e have an abundance of blue-grass and blue-grass milk, but e people in the city do not get good milk, because it is modi- ed by adding water and using agents to prevent fermentation, oric acid being used frequently. If you can get good milk nd add a little chlorid of sodium, the baby will get along very ell. The starvation of a baby that has been overfed has, think, been carried a little bit farther than the necessities of e case require. If you give the baby hot water six or eight ours and then resume its dietary, it will do all right. I have aken infants in apparent collapse from choleraic disturbance the bowels and held them off on hot water six or eight hours nd then given milk or condensed milk in teaspoonful doses an our apart. I believe prolonged fasting is objectionable, ecause the child will reach a point after a while where he will efuse to take anything.

Dr. CHESBRO—The matter of withholding food from the fant is important, but I believe it can be carried to excess. We not only are in danger of losing the confidence of the mothers but we may weaken the infant. After six or eight hours I believe the albumin of egg stirred up in water can be given with good results. That helps to satisfy the thirst of the child, which is intense, and is well borne by the stomach and it helps to keep up the nutrition of the child. I believe a good many of these attacks of indigestion are due to overfeeding in the first place. Indeed, I think the reason so many mothers, nurses and doctors have trouble with cow's milk and are so anx- ious to use patent foods is because they do not use it properly. They do not properly dilute it. If they simply dilute the milk properly and add sugar and lime water, the child will do very well. In regard to the use of condensed milk, my own idea is that condensed milk modified so simply as one of the gentle- men who preceded me said, is one of the poorest foods we have. Condensed milk, in order to approximate anything like the composition of human breast milk, can be diluted only about 1:6, but not one child in thirty can take it diluted 1:6. Other ingredients must be added, notably fat. But it is surprising to see how once in a while a child will get along on condensed milk. A child I saw, with a temperature of 103 degrees, con- solidation of the left apex, some evidence of bronchitis and a loud systolic murmur, indicating congenital heart disease, I found was fed on condensed milk diluted 1:30 and in addition was having two slices of bread a day. The child had previ- ously been doing well. As the gentlemen said, I do not believe it is possible for a child to be fed on any one food alone for any length of time without the development of rickets. For the first months of life condensed milk makes very good food. It makes fat babies, but as a matter of fact they have little resistance. Almost every child will develop rickets unless in a few months it has a pronounced modification of its diet.

Dr. S. E. WOODY, Louisville—The number of prepared and patent foods shows that they are inefficient. Cow's milk prop- erly prepared certainly gives us something we can feed nearly every child. The use of the different formulæ for preparing it and the addition of sugar of milk, is better than to use such a thing as condensed milk, particularly the Eagle brand, which contains about 50 per cent. of cane sugar to preserve it. Cane sugar is a sugar which is not digestible by the child. I have discarded the use of prepared foods almost altogether. Of course there is no rule which we can lay down by which we can feed all children alike. We have to use beef juice and different preparations of meat in order to get them over some of the disorders of digestion.

Dr. WHITNEY—I think it would be interesting if the Chair- man would give us the results of the collective investigation on scurvy.

THE CHAIRMAN—There is a committee of the American Pedi- atric Society which has been studying the etiology and symp- tomatology of scurvy. We recently had the report presented at the meeting in Cincinnati. We had collected altogether 379 cases of infantile scurvy. We know that it is a distinct diet- etic disease, and represents faults in diet. There are many other disturbances which are produced by faults in diet, but in scurvy it is very interesting to study the relation of the food used to the disease. The committee has been careful not to use any names. They do not say such and such a food pro- duced the disease. We do not want to involve ourselves in any lawsuits, and we only say what food was used when the scurvy developed, and what food was used when the case recovered. Two hundred and eighteen cases had been fed on proprietary foods. Of that number condensed milk had quite a large pro- portion of cases. We have stated just how many cases were using Mellin's food, just how many were using malted milk, and so on through the list. The report will be published soon.

Question: I would like to ask the Chair whether the long continuance of the one food was considered, because in the scurvy of the adult occurring on shipboard the disease is not

attributed so much to the article of food as to the continued use of one article of food.

THE CHAIRMAN—It was the prolonged use of an improper food. It was not always one food, for sometimes the child had run the gauntlet of the proprietary foods.

MILK-MIXTURES AS FOOD FOR INFANTS.

Presented to the Section on Diseases of Children at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY EDWIN ROSENTHAL, M.D.

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The ideal nourishment for a child is mother's milk. Nature and nature's laws have wisely ordained that the child, whose digestion is unsuitable to the foods of matured years, should be provided with nourishment which in the nature of things is most simple and bears with it the vital ingredients necessary to the child's growth. When, by certain causes, the natural method of feeding the infant is interfered with, artificial means are at hand to become the substitute for the mother and bring to the child such food as is alike acceptable to its taste and digestion, and which will add to its growth, prevent disease, and assure it a healthy childhood.

As the feeding by the mother or the "wet nurse" is called the "natural" method, so is the other, by reason of its application, entitled the "artificial" method of nourishing, and the sucklings so reared are termed "bottle babies." If we accept as facts the commendations of the various manufacturers of food preparations, nothing could be simpler and easier than to raise a new-born infant artificially. You obtain a food which purports to represent the elements of human milk, and prepare and use it according to directions. These various preparations may be more or less useful as temporary food for older children, but for new-born babes and infants in their first months, according to the unanimous view of all physicians, these foods are not suitable as temporary, much less as sole, nourishment. The only true substitute for mother's milk is to be found in the milk of animals. For this the cow is principally depended upon, and the percentage of the three important ingredients in human milk and cow's milk is shown as follows:

	Fat.	Casein.	Sugar.
Mother's Milk	3.1	1.7	6.2
Cow's Milk	2.5	3.6	4.8

This proves conclusively that cow's milk differs from human milk in the amounts of albumin (casein) and of sugar.

Sugar in milk is not intended simply for sweetening; it also has nourishing qualities, and in the artificial preparation of milk it is essential that it be used in the same proportions; and by reason of its digestibility, milk sugar should be used instead of cane sugar. The greatest difficulty met with in using cow's milk is the proportion of casein—double that of the human milk. It is, therefore, a fixed rule in practice to mix the milk so that the proportions of casein and of sugar be so apportioned that the resemblance to the human milk will be certain, not only in theory, but also in results. For the better understanding of the method of mixing, definite percentages have been presented and certain rules have been adopted which, if adhered to, will be most certain of results, and will place the method of feeding by this artificial wa upon a classic, scientific basis, with the ultima result of making the method a truly reliable on receiving the approval of all. I may say that th method of mixing milk is but in its infancy, and th it has not received the attention which it deserve but I firmly believe it will, by its own worth, b brought to the notice of all, and become the only re and true way of nourishing the infant.

Many names have been bestowed upon food tha takes as its basis cow's milk. The one most widel known, which had its birth in our country, an received its title from one of our members, is th so-called "Modified Cow's Milk." Unfortunately, th use of the name as well as the milk is objectionabl from an ethical standpoint, being a patented article This, however, can not change its value, nor its util ity, and as methods have been devised for the prepa ration of such foods at home, it can be used and wil continue to be used, the patent notwithstanding.

Different methods have been devised to so mix th milk as to make it as nearly like human milk as pos sible. Biedert's method of "modified milk" is a mix ture of cream, milk and water in varying proportions according to the age of the child. In our countr Rotch was the first to place "modified milk" upon truly scientific foundation. He has presented to th profession two methods of preparing the milk; on may be termed "the milk laboratory method," and th other the "home method." Certain percentages hav been taken as a basis. The elements entering int the food were termed by him, fat, sugar and protein and the milk laboratories can furnish "modified milk" of any desired proportions upon prescriptions of phy sicians, exactly as drugs are dispensed by an apothe cary. While the expense of feeding an infant by thi means is very great, other factors of vital importanc are against it. We are, as it were, dependent upon laboratory for the child's food, and if some acciden should happen to prevent the making of the food fo one, two or three days, we would be in an unfortunat predicament. The "home modification" would, there fore, appear best, and for this purpose certain instru ments, with a certain fair amount of technique, ar essential. Rotch, as well as Holt, gives many formula suitable to children of various ages, which can b applied in various ways, and which are perfectly satis factory. Lately I have been using "Fat Milk"—th "modified milk" food as prepared after the method o Dr. Gustav Gaertner, and known commercially a "Gaertner's Mother Milk." This food is prepared i the same manner as by Professor Rotch's method The centrifuge is used to separate the fat, by s arranging the tube which expels the cream from th centrifuge separator that just one-half of the mil contained therein is expelled and collected. In thi way, as the casein, sugar and minerals are not affected by the process of centrifuging, the percentage of th latter is not changed, while that of the fat is doubled The advantage of this food over the other modifie food is that it comes to us already prepared, and sim ply needs to be heated, and the cans well shaken s that the mixture be thoroughly made before using If the food be permitted to become cooled, it will sep arate again, and lose the appearance of pure milk. have used "Fat Milk" in various diseased condition and have had very fair success.

In the preparation of milk foods at the home, think several points should not be lost sight of: 1. th

milk should be of undoubted character; 2, it should be free of any drugs, as boracic or salicylic acid; 3, the addition of salt to the food, and when sugar is indicated, the use of sugar-of-milk (milk-sugar) instead of cane sugar; 4, the agents used to modify milk. The first three points can be discarded, as, all things being equal, the best milk will be the one taken, and this will of necessity be entirely free from any adulteration. The fourth point can not be so easily discarded, for upon this depends to a certain extent the well-being of the child. Rotch's formula—which may be altered to suit any case—is: Fat, 4 per cent.; sugar, 7 per cent.; proteids, 1 per cent.

Taking this as a basis to show how such a formula as this can be prepared, Rotch gives the milk laboratory formula in position, and I think no better way of explaining the method of its preparation can be given than to present both formulæ, as Rotch gives it under the name of "Modifying Clerk's Prescription:"

PHYSICIAN'S PRESCRIPTION.	Per cent.	CLERK'S FORMULA.	Oz.	Dr.
Fat	4	Modifying cream	7	7
Milk sugar	7	Modifying milk	4	7
Proteids	1.5	Sugar solution	8	3
Mineral matter		Lime water	1	5
Lime water		Water	8	6
		Total	31	4
Number of feedings				7
Amount at each feeding			oz	$4\frac{1}{2}$
Heated at			degrees F.	167
Time in sterilizer			minutes	20
Remarks:				

This will be correct as long as it is obtained from the milk laboratory, but when it is to be made at home, it will be found rather a difficult subject. For this reason other methods have been used to modify milk in the home, and perhaps the one most used and most favorably known is the "flour-ball" modification. This is made by the addition of a tablespoonful of flour, previously prepared by boiling it for five hours, to a quart of milk mixture. This milk mixture is graded according to age, as within 1 to 3 months, the milk and water are one pint each; after this period the water is reduced one half-ounce every month, the milk being added to keep up to the quantity of two pints. Sugar need not be added to this mixture, or very little. Salt, however, I have always used, and in quantity hardly to be tasted. To give a taste, as well as to sweeten the food, cinnamon bark has been added. This, however, may simply be fanciful, but it is useful, especially in those cases which we term colicky babies. Among the proprietary preparations "Imperial Granum" comes the nearest to the flour-ball mixture, and I frequently prescribe it when such a food is indicated. Used as I have thus directed, it becomes one of the easiest home modifiers. Another food that is used in Philadelphia to quite a large extent is what is known as "Mellin's Food." This is also among the simplest of home modifiers. The method of its use is: milk, water and the food in varying proportions. Analyses of the different mixtures have shown it of equal value to other home methods. We can also make food of low or high proteids, fats, etc.

As the food for the infant depends largely upon the peculiar idiosyncrasy of each child, no fixed rules can be laid down nor followed. It must, however, be the rule in practice to adapt the food to the child's needs, and not the child to the food. The quantity and quality of the food is an insufficient guide. Even while it may be of the best, it may not be the one adapted for that individual case. We should watch the stools to see if the food be thoroughly digested. If the child suffers from diarrhea, caused by the food, it would be irrational to continue its use. It is, therefore, safe to take as the guide the stools, and if we find digestion complete, the continuation of the food is in order, but if we find that digestion is incomplete—noted by the color, consistency and presence of cheesy masses in the stools—then the rule will be to at once change the food, and to remove that element that gives rise to the difficulty. Milk is the only really honest food to give the infant. Modified to fit its condition, we are on the safe path to perfect health.

DISCUSSION.

Dr. SLAGLE of Minneapolis—The great trouble with us in the West here is the milk-supply. The milk that we are feeding our children in Minneapolis is secured once a day, and the milk they get this morning is not milked this morning but at least part of it was milked yesterday. It will not be long before even in cities of this size they will have milk laboratories. We all admit that cow's milk is the best food, next to mother's milk, and can be modified to do away with the commercial foods, but at the present time we are compelled to use the commercial foods to a large extent in Minneapolis and they do, I believe, throughout the West.

Dr. R. B. GILBERT, Louisville—I was glad to hear that in modifying milk the essayist mentioned the flour ball. He has shown us the necessity of phosphorized elements in the infant's food and shown the minute work of nature in converting the material into food. But that is not new by any means, although the scientific elucidation of it is somewhat recent. In my earliest experience in baby feeding in the country it was the custom of the country women to feed a baby with what they called scorched flour, simply converting the starch into a kind of diastase or malt and retaining the phosphoric element. That was sometimes very happily used in correcting trouble in bottle fed infants. I have frequently recommended the same sort of a plan. I want to make one more point about condensed milk. The condensed milk must be fresh. If a can of condensed milk remains on the shelves of the drugstore or grocery three or four months before it is used, I do not know the changes that take place, but it is not as easily digested. I have in my town a grocer who is raising a pair of his own children, twins, largely on condensed milk. I give in addition to the milk a piece of bread. I have the grocer to bring on a case of fresh condensed milk every week and where I have bottle-fed babies in different parts of the city I send them to that one grocer, because I know then they get the milk fresh from the manufacturer.

Dr. H. M. MCCLANAHAN, Omaha—I have entirely abandoned patent food for infants. I have had eighteen children under my care and they have all been well developed. I have resorted to a formula which any ordinary mother can carry out. In the first place, I have them procure the milk from as good a source as possible. When they can, I have them procure it twice a day; when they can not, I have them procure the milk and skim off the cream. Then I have the mother to take three ounces of the cream, two ounces of good milk, one ounce of milk sugar and ten ounces of water. First dissolve the milk in water, sterilized, and then add the milk and cream. This is placed in nursing bottles with cotton stoppers. A sterilizer can be made out of a bucket with a perforated false bottom. Five of the nursing bottles are placed on the false bottom in the bucket and placed on the stove. I direct the mother to leave it until the steam escapes twenty minutes. These are then placed in a bucket of cold water. When she is ready to feed the baby I tell her to place the bottle in a can of hot water as hot as the hand can stand, which is about 115

degrees, and then the temperature of the milk is about 100. Then the cotton is removed and a clean nipple placed on the bottle and the child fed. Another thing I have found by actual investigation is that that is no more expensive than any other method of feeding, not excepting condensed milk itself. Milk sugar in Omaha they can buy at 25 cents a pound. Then with a sterilized bucket, which costs very little, and a graduate which costs 10 cents, we can take good care of these children. From one of the babies I withdrew milk entirely and gave only cream and water. In one case I had to reduce the cream until there was only one-eighth cream and seven-eighths water. Then after a few days I increased the amount of cream until I got to about to the normal proportions.

Dr. MCCONNEL—Sometimes we have to exclude all proteids. That is based on the condition of stools. When you have a putrid diarrhea, when you are feeding milk-mixtures, you must exclude the proteids. If you contine any form of milk, you will not nourish the child. Then you must confine it to the farinaceous foods. If this is carefully watched and you stop the cow's milk for a few days if you have putrid diarrhea and confine the child to farinaceous foods and a limited diet, after the bowels become clean you can come back to the ordinary food.

Dr. JOSEPH CLEMENTS, Kansas City—Along this line I want to call attention to a boy I have today in Kansas City, over 2 years of age, ruddy and robust and fat and plump and perfectly healthy, whom I have brought up on various kinds of foods, finally coming down to modified milk. I first saw the boy when he was three months old. The mother was a trained midwife and I supposed she had a proper modification of the milk. The child was a perfect skeleton, but I put him on a modified milk and the baby got along well for a number of months. Perhaps five months afterward I found the baby in the same condition I found him at first. He was a perfect skeleton. Then I put him on Mellin's food and he again became fat and apparently healthy. The parents were Germans and came back later and told me the baby was bad again. Then I changed to condensed milk with the same result as before, that the baby improved and got fat and after a few months became ill again. They had sent for their priest, supposing the child would die, and he said there was no use sending for the doctor as the child was too far gone. I put him on modified cow's milk and he did well and has stayed in a good condition since. He was thirteen months old before the first tooth appeared. He now has a good supply of teeth and is in a good condition.

Dr. J. P. CROZER GRIFFITH, Philadelphia—I have purposely kept in Philadelphia the only out-patient department I still have, the Children's Hospital in May, June and July, because I want to be thrown with the class of people who can not get the usual modified cow's milk. I do not believe the occasion arises, or only very rarely it arises, where we can not perfectly well feed a child modified cow's milk. The difficulty is not great. We as physicians should abandon the habit of saying we will give this child an ounce of milk and an ounce of cream and so much water. We ought to think in percentages, as Dr. Rotch has so long told us, and then we think much more accurately. We do not need milk laboratories. They are useful but not absolutely necessary. It costs only abou 86 for a Babcock centrifuge and you can then test the percentage of cream your little patients are going to take. You can assume that the percentage of proteid will be 4 per cent.; it usually runs about 3.5 per cent., so the error is on the right side. I would like to refer you to an interesting paper in the *New York Medical Journal*, March 12 of this year, in which it shows how to make the proper percentages and how much milk and cream the mother is to use. In Rotch's book you will find a series of tables telling how much milk and cream you are to take. They are all right when you are in your office, but at the bedside you can not remember them. So I have a table copied in my book. I know this is simple, for I used it on the poor people, where I have no more opportunity to get good milk than you have in any part of the country.

Dr. EDWIN ROSENTHAL, Philadelphia, in closing—Mr. Chairman: The idea I had in presenting this paper is that we can modify our foods at home. My idea is that this should be the food for healthy children, and in knowing how to properly feed your children you prevent them getting sick. If the child has putrid diarrhea, you must not continue the milk, but put it on barley water or whatever you think proper for it. Inasmuch as I have seen some accidents occur from the use of condensed milk I am not so heartily in favor of its use. The milk had some hydrosulphuric acid in it and spoiled. Whereas, in the modification I have suggested, I do not count it up in percentages, I try to make the formula as simple as possible. A point I wish to lay particular stress upon is dentition. I think the gastric disturbances during dentition are due more to the dentition than to the foods. I have a poor class of patients that I do not care to give up, and among them I have seen some remarkable results with Mellin's food and with malted milk, but I can not conscientiously give any recommendation to any food. If you modify the milk, whether in percentages or in ounces, you are on the right road to feed your child properly.

A NEW BREAD FOR DIABETICS.

Presented to the Section of Materia Medica, Pharmacy and Therapeutics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY N. S. DAVIS, JR., A.M., M.D.

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CHICAGO, ILL.

I do not propose to present a formal paper to this Section, but to exhibit a flour and samples of bread which have been invented and prepared by a patient of mine, who, himself a diabetic, has for a number of years experienced the need of a substitute for wheat bread.

When treatment is first begun a diabetic should be placed upon a strictly non-saccharine and non-amylaceous diet, in order to determine how far the disease can be controlled by diet. This change should not be made abruptly, but gradually, during a week or ten days' time. If the change is made abruptly, appetite often fails and malaise increases; in some cases untoward symptoms may arise and coma has not infrequently been observed to develop.

A rigid diet can not be long maintained. Nor is it necessary so to do. In the least severe cases a modicum of carbohydrates can be assimilated. Just what this quantity is can only be ascertained by a careful study of each case. Frequently, during exacerbations of the malady, a relaxation of dietetic restrictions proves better than an increase of them. Whenever a strictly diabetic regimen must be adhered to, and whenever one only slightly modified from this must be employed, a substitute for wheat bread is craved. No one article of food is more universally missed, if it must be omitted, than bread. A variety of flours have been invented as substitutes for wheat flour. Gluten flour is more universally used than any other. It is almost impossible to make palatable bread from pure gluten. All the gluten flours upon the market contain starch in considerable percentage. It is better to permit diabetics to eat a given amount of wheat bread instead of unlimited amounts of gluten bread, which contains on the average half as much starch as ordinary bread and is less palatable. Bran cakes, soya biscuits or bread, almond cakes, cocoanut cake

nd peanut bread are other substitutes for wheat bread. Bran flour contains a considerable percentage of tarch. The cellulose which it contains makes it ndigestible and liable to provoke diarrhea. Soya lour makes bread which is not very palatable. Analyses of the flour vary much, stating that it contains rom 3 to 45 per cent. of starch. The most trustworthy nalyses accredit it with about 20 per cent. of amylaceous matter. Almond flour contains from 4 to 5 per ent. of sugar, but no starch. It is so rich in oil that t also often produces dyspepsia. Cocoanut flour contains a small quantity of sugar. From it a variety of read-like or cake-like preparations can be made. Peanut flour contains about 14 per cent. of carbohydrates. It does not make as palatable preparations s either the almond or cocoanut flours.

The flour which I show you is made from one of he many edible pine nuts. It is fine, slightly yellow, nd bland in taste. The flour contains no starch and nly 7 per cent. of cane sugar. If bread or other rticles of food made from it are raised with yeast, his sugar is decomposed so that only a fraction of 1 er cent. can be found in the product. I have prescribed it for a dozen or more diabetics during the ast few months. With few exceptions the bread and ake made from it is relished and found to be an greeable substitute for wheat bread. Two patients t first relished it, ate it with avidity, but at the end f a week or ten days found that it caused indigesion. I urge patients to use it moderately, not *ad ibitum*. Certain patients are told to use it at two of he daily meals and are permitted to use a moderate mount of wheat bread at the third meal.

This bread does not produce gases when it ferents. If it does not agree with the patient it produces loss of appetite and disinclination for it. It ontains 19.82 per cent. of oil; sweet almonds contain 53 per cent., and cocoanut 70 per cent. It is herefore less likely to produce indigestion than flour products derived from either of the other nuts. It ontains 55.65 per cent. of albuminoids; 6.42 per cent. ineral matter, and approximately 4 per cent. of fiber.

It is essential to the treatment of diabetes that itrogenous waste should be lessened. This can be ccomplished in part by prescribing oils and fats nstead of starches and sugars. All these substances etard nitrogeneous metabolism. The oil in these ut flours is therefore not objectionable, but desirable f a patient's digestion is fairly good.

I believe the best results are obtained, if substitutes for wheat bread must be prescribed for diabetics, hen patients are gradually accustomed to their emloyment and when they are used intermittently ather than constantly. From this flour, which is known as the Chicago Sanitary Flour, a variety of ood products can be made—bread, muffins, pancakes, ake, cookies, etc. Some of these must be made with aking powder instead of yeast, and contain a small er cent. of cane sugar. They are not as well dapted as the others are for diabetics, but are useful or those dyspeptics who do not tolerate amylaceous ood.

Chronic Buzzing in the Ears.—For this quinin is warmly recommended by Bouchard. It exaggerates at first, but later diminishes very much the noises, not only in dry and sclerous otitis but in Meniére's disease. He adds that complete integrity of the ear is rare among the insane, and that the treatment of the ear troubles is an important feature of the cure.—*Rev. de Laryng.*, October 1.

DENTITION.

Presented to the Section on Diseases of Children at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June, 7-10, 1898.

BY JOSEPH CLEMENTS, M.D.

KANSAS CITY, MO.

Speaking of dentition in the concrete, the importance of the subject looms up considerably when we remember that there are fifty-three dental colleges in the United States, with more than fifteen hundred graduates, interested and employed in the science and art of the care and treatment of the teeth; or in more modern terms, doctors, whose practice is limited to oral surgery. And such proportions is this assuming that ere long we shall have to add to the three learned professions—theology, medicine and law—a fourth; namely, dentistry, and the instructors in our medical colleges will have to enlarge the curriculum more fully, embracing this important branch of medical knowledge, or there will be other Edward Brannigans, D.D.S., besides the one who addressed you last year at Philadelphia, whose words will be somewhat of a reproach on our lack of this necessary knowledge.

I wish here to call your attention to an excellent paper by Dr. J. W. White published in the *American System of Dentistry*, which throws considerable light on what I may term vexed problems in dentition.

I desire to acknowledge courtesies accorded me by D. McMillan, M. D., D.D.S., president of tho Western Dental College of my own city, for besides the dissection of subjects in embryo obtained in my own private practice, I was permitted to examine the many skulls and casts, etc., of fetuses and children in the laboratory and museum of the college.

As a general statement I may say that the evolution and development of the teeth are the same and in the same physiologic way as that of the nails and the hair, only the nails and hair are in a more perfect state at birth. These are fully formed and developed at the end of intrauterine life. Indeed in a fetus of not more than the seventh or eighth week, the nails, I have found to be in appearance as perfect, almost, as my own, though I found no budding teeth.

Physiology and anatomy teach that in the seventh week of germ life a groove appears in the jaw, termed by Goodsir, "the primitive dental groove." From this groove and at its base papillæ arise; sacs form enclosing these, which become vascular; basic and other salts accumulate and thus the milk teeth are developed. Small grooves behind these first evolving teeth, and still during fetal life, are observable and in process of time these are converted into cavities, with their vessels and blood-supply, and thus the process is duplicated and repeated in the formation of the second or permanent teeth. Prolongations or extensions backward of and from the original groove, one at a time, and after the growth of the twenty teeth taking the place of the deciduous teeth, constitute nature's provision for the completion of the set. The nucleus of the first teeth is "the primitive dental groove." The same for the permanent teeth is "the secondary dental groove," or rather grooves, these providing for twenty of them. The remainder developing from an extension laterally from the outermost mature tooth, which, when sufficiently advanced continues or extends the groove for the next tooth, the process being again repeated, making three on each jaw, each of which may be said to be singly and

independently developed. During this second dentition the roots of the first teeth are absorbed, as I have often observed when extracting the milk teeth. The crown, neck and fang which make up the tooth are composed of the pulp, the dentine and enamel, and these are different in their histology, the various ingredients of the enamel and dentine being worked up, so to speak, by a process of calcification. As soon as this calcification is sufficiently advanced the irruption of the tooth takes place, and this occurs, beginning with the fifth or sixth month, and continuing on at intervals to the end of the second year.

The evolution of the teeth is without doubt a continuous process, the irruption of the same is at stated periods, in more or less regular order. I believe "Gray's Anatomy" is authority for the statement that as soon as calcification is sufficiently advanced the irruption of the tooth takes place, and I am equally sure Dalton's or Flint's Physiology teaches the same. In the "The American Text-book of Diseases of Children," Dr. Forchheimer says: "The greater part of teething is accomplished before the child is born," and also, "This process of development has taken the whole period of fetal life, so that the child comes into the world with all its teeth fully formed within the jaw." The Doctor has certainly somewhat overstated the facts in the case. I have examined a number of fetuses of the advanced periods, sixth and eighth months, and did not find the teeth in a condition to warrant that statement. In many skulls, embryo and infants, of various degrees of growth, ranging from three months of the former to several years of the latter, I did not find it so. At birth only about three-fourths of the crowns of the central and lateral incisors, and less than half of the crowns of the molars, of the first set, are to be found, the roots being still almost entirely undeveloped. The dentine and enamel of the incisors begin to calcify at the seventeenth week of embryonic life. At birth the roots of the incisors only just begin the process of calcification. Not until three months after birth do the crowns of the cuspids and molars begin to calcify, and the roots of these deciduous teeth are not completely formed and calcified until the twentieth or twenty-second month after birth.

I refer to this particularly, because if the teeth were fully formed at birth and therewere nothing needed but a *vis a tergo*, to bring the teeth through the gums, then much of the phenomena observed during teething is not to be accounted for in the way we have usually accounted for it. The aim of this paper is to ascertain what causative relation there exists, if any, between teething and disease in children. I hold that the process of teething includes much more than the mere projection through the gums of previously formed teeth. The generally received view is, that the physiologic process of the development of the teeth, beginning in fetal, is projected on into, and continued in infantile life; so that a considerable part of teeth formation, as well as their irruption, is included in the term dentition. Besides, in regard to the second dentition it is established that while beginning early in embryonic life, much the larger part of it is carried on after birth, and therefore during the first months and years of the infant's existence, we have what I may call the complicated phenomena of the development and perfection of a large part of the first set of teeth, *and their irruption*, and at the same time a large part of teeth formation of the second set. By the time of the completion of the irruptive process of the milk teeth, there area lso the germs of at least twenty of the permanent ones, in most of which formation is considerably advanced, and calcification already begun.

During the first two years of life a child is building its first teeth, during the first six years it is building its permanent teeth, and attacks of sickness and disease during these first years of childhood can be discovered and affirmed many years afterward by an examination of the teeth, and a near approach to a diagnosis of the nature of the disease and the exact age at the time, can be made. Such complicated phenomena going on after the child has just emerged from its embryonic into its actual life, and continuing during the earliest and tenderest months of its existence, must be a great tax upon the resources of the infantile cosmos. Some one has said: "Woman is an *uterus* with necessary organs and parts associated." With equal aptness, at least, we may define a child as a *mouth, with necessary parts associated*. Dr. White, in the article I have referred to, has shown that the mouth of a child is related and associated by continuity and contiguity to most parts of the entire body. By continuity of its mucous membrane, and especially through its blood and nerve supply it is related to almost the entire organism. The trigeminus, the nerve of the mouth and teeth, which is the largest of the cranial nerves—and whose sensory fibers from its posterior root form the semilunar ganglion—receives filaments from some of the plexuses of the great sympathetic (the carotid and the cavernosus plexus, connected also with the third and the sixth, and sometimes the fourth, nerves directly, and indirectly with many others), brings the mouth en *rapport* with many different parts of the body. This fifth nerve is somewhat like the par-vagus or a spinal nerve, in the ramifications of its branches, and in its diffused influence and power. It can readily be seen then, that abnormal conditions here, and during the period of dentition, may reveal themselves in localities and parts far removed from the buccal cavity, just as an irrttation in the floor of the fourth ventricle may reveal itself in an attack of pseudo-angina pectoris. The connection between teething and diseases in children is nervo-vascular, disturbances of the fifth nerve acting as a producing cause.

The irruption of the teeth, as Dr. White says, is a physiologic and anatomic *crisis*. Or, as Dr. Love of St. Louis puts it, "In teething the child is passing its first *climacteric*." Physiologic dentition, with normal enviroment, produces little or no disturbance, perhaps, complicated and exacting as its wonderful phenomena may be. Yet this is not the rule in these modern times. It is a fact that infant mortality is largest during the teething period; more than one-third die during the first year, and about one-half of all children born die during the dentition period. Dentition produces or aggravates the causes of disease. Teeth irruption produces nervous phenomena which increase susceptibility to disease and lessen the power of resistance (White). Impaired nervous equilibrium puts the child in the power of disease, so to speak. Nervo-vascular activity is increased during teething, producing functional derangements, so that a child without or beyond this condition, would tide over a spell of bad weather, for instance, or an attack of indigestion, with little or no disturbance, but during this disturbed equilibrium of the nervous system, as White puts it, these vicissitudes result in

sease. Dentition is physiologic and natural, to be re, and so are other functions in the human econ-y, and yet they are disease-producing or superin-ucing: witness the disturbances during child-bearing d during menopause. And doubtless they may all e produced by similar causes, the disturbed equilib-um of the nervous system or the nervous vascular xcitement playing a large part in the etiology of the ffections.

I am aware that medical opinions differ somewhat n regard to the place teething occupies as an etiol-ogic factor in the diseases of children. A genera-ion or two ago dentition was allowed to play a prom-nent and solitary part as a cause of disease; today ome would deny it any place whatever as a disease-roducing factor. The pendulum swings from one xtreme to the other, as Dr. Robinson of New York ays: "Whenever there is a reaction from an erron-ous theory or faulty method of treatment, the reac-ion is sure to go to an extreme." The truth lies in he middle ground. That teething may stand as a ontributing factor in some considerable disturbances o the health functions, initiating abnormal condi-ions, which, joined and fostered by other factors, esult in disease and death, I certainly believe. Ellis, n "Wood's Library, says: "Diarrhea of teething is atural." Thies attributes dental paralysis to the olar teeth. Smith affirms: "Among the most com-on pathologic results of difficult dentition are cer-ain affections referable to the cerebro-spinal system, clampsia being one of the admitted results." Smith lso lays down the following rule in diagnosis of the tiology of these infantile disturbances: "When sim-lar symptoms arise at each epoch of teething, and ubside with the subsidence of the gingival turges-ence, teething must be regarded as the cause." armichael says: "The evolution of the teeth is one f a number of developmental processes going on in he body, and organs and tissues are prone to dise ase n proportion to their normal or physiologic activity," nd "The nervous system is at these times always in state of hyperactivity." Speaking more particu-arly of the philosophy of the connection between eething and those disturbed conditions, Bouchut ays: "Convulsions in teething arise from nervous xcitement, from pain and disturbance," and who that as had any experience with children can question he assertion? I must set myself down as an advo-ate of the use of the gum lancet, in suitable cases. f one has ever seen a child in an eclamptic seizure, uscles rigid, eyes rolling, gums tense and inflamed, nd has applied his lance, and in a few moments bserved the spasm relax and cease, and the child pen its eyes in evident relief and ease, it will require o words of mine to convince him that there is still a lace and use for his lance in difficult teething. Barrier affirms: "Diarrhea is caused in adults by udden emotion of grief or fear," and in answer to he question, How? I believe his answer was: "Reflexly and by central nerve irritation." Diar-hea in teething may doubtless be explained in the he same way. An aged clergyman, a chaplain, who had attended many executions of murderers, told me hat the bladder always emptied itself and that fre-uently the bowels were influenced in the same way during the last moments. The one philosophy applies o all the different instances.

Teething is no doubt a cause of disease, a superin-ducing cause at least. It is not sufficient to say teething is a normal process and will take care of itself. Possibly it would if parents were normal and habits of life were physiologic and hygienic, but in the conditions of modern society prevailing today, and so many babes "brought up on the bottle," of so many of which it may be said with truth, "There is death in the bottle," the slaughter of the innocents goes on by the thousands every year.

If, as I maintain, the complicated and duplicated process of teeth formation is projected from germ into actual life, and the development of the permanent teeth is taxing the powers and resources of the little cosmos at the same time and while the irruption of the just-completed first teeth is taking place surely this is a time when the aid and skill of the well-informed physician may be needed. Little drug medication will be required, the less the better, usually. But first correcting the condition and the habits of the mother herself; keeping away from them the patent nostrums they are made to swallow by the tons in weight every year, superintending their food supply so far as possible, and rendering timely aid during the periods of disturbance as they arrive, infant mortality may be reduced to a much lower percentage than we now have it.

DISCUSSION.

Dr. SLAGLE, Minneapolis—I remember Professor Bell of the University of Louisville saying something that struck me as good philosophy; he said there is nothing easier than for a man, who is smart and well posted, to build up a nice theory, except the facility with which another equally smart man will explain it all away in another way and show up his mistakes. A man who has been in the practice of pediatrics for over forty years and a teacher of pediatrics for fifteen years, is apt to be dogmatic, but the longer I practice among children the less importance I place on teething as a factor in the causation of disease. The medical profession is divided on this subject considerably and possibly will be for some time, still the general trend of the profession is along the line I have been speaking. I believe it is our duty to teach the laity that the symptoms attributed to teething and worms are due to other things. When I am called to a case of eclampsia I will search for every other cause first and then if I can not find any other cause I will look to the teeth, and I will scarify them if necessary. I formerly scarified twenty times where now I scarify once. I want to emphasize that the longer I practice medicine the less stress I lay upon dentition as a factor in the causation of disease except as a predisponent.

Dr. RICHARD, New York—Personally I must endorse the remarks of the last gentleman, or at least, say that it is the belief I have followed for some years and I have not placed a great amount of stress on dentition. We do have to face this as a very common expression among the laity, that the child is teething. I have followed the authorities cited by Dr. Clements, in which dentition is considered coincident with other changes going on in the life of the infant. At the time of the eruption of the teeth I understand there is simultaneously a change in the mucous membrane and the secretory apparatus of the digestive tract, which causes disturbance of digestion. In some cases the disturbance is trivial, in other cases it is serious. I have often used the following illustration: A manufacturing plant which requires a day gang and a night gang, is thrown into more or less confusion as the day gang goes off work and the night gang comes on. There must be more or less disturbance. I feel as if dentition is coincident with these changes, which are going on in the alimentary tract, which are to be looked upon as necessary disturbances and combated when necessary.

Dr. LOUIS FISCHER, New York—I heard part of the paper

only but I should like to be put on record as believing that dentition is a purely physiologic process. I believe with Jacobi and others that all the pathologic changes noted during the period of dentition can easily be accounted for if we will look to their true etiology. I am confident that especially in summer a great many of the diarrheas we see at the various clinics, which the mothers attribute to teething and state that until the teeth come out the diarrhea will not stop, are due to other causes. In winter when we have pertussis or a cough, it will invariably be laid by the laity on these four little teeth. I would like to ask the essayist whether he believes the convulsions during dentition are due to a reflex action, or whether he looks for another cause of these convulsions.

Dr. JOSEPH CLEMENTS, Kansas City, in closing—The criticisms are just what I wanted to get and tried to call out. I have seen the trend in the other extreme. Teething I believe acts as a predisposing cause. I will now speak of convulsions. The other day I was called to see a case of convulsions. A little girl came to my office from about three blocks off and said the baby had fallen out of a chair and was dead. I found the baby in convulsions. I began to look for the cause, looked at the diet, the passages and the bowels and inquired in all directions. I could learn nothing from the mother that would give any light on the subject. I gave the child an emetic and used an enema of hot water, from both of which I got very little result. I then inquired about the teeth and found four molars just breaking through. The mother told me the child had been perfectly well except for the past week it had been peevish and irritable. They did not know what was the matter with the child and thought it was just a bad temper. It seemed to me the teeth had something to do with it. Possibly the diet played a rôle, but there was very little to substantiate that view. I could get scarcely any response from the emetics and little from the enema. The teething I believe may have produced a reflex action through the nervous system and caused the convulsions, just as an irritation in the fourth ventricle may produce pseudo angina pectoris.

SOCIETY PROCEEDINGS.

The Chicago Society of Internal Medicine.

Regular Meeting, Oct. 19, 1898.

Dr. JOHN A. ROBISON, president, occupied the chair, and after the minutes of the previous meeting were read and approved, Dr. J. M. G. CARTER of Waukegan was elected a member.

Dr. ADOLPH GEHRMANN read a paper entitled

THE RESULTS OF WIDAL'S TEST IN THE DIAGNOSIS OF TYPHOID FEVER FROM DRIED-BLOOD SPECIMENS.

The use of dried blood as a means of collecting and preserving specimens of blood for the diagnosis of typhoid fever, first suggested by Wyatt Johnston in 1896, has been generally used by health authorities as a means of diagnosis since that time. It has been subject to some modifications, but as used in most places it is essentially the same method originally proposed by Dr. Johnston. In Europe dried blood is seldom examined, at least published statements of this use are not to be found. Indeed, Widal's test has been more widely adopted as a public health diagnosis in America and England than it has been on the continent, and in the United States and Canada it has been used to especial advantage. The chief objection to the use of the dried-blood specimen is inablity to obtain accurate dilutions, but it may also be said that all the other methods of applying the Widal test require considerable skill for the collection of the serum and the measurement of the dilution, making them, therefore, too complicated for utility in public laboratories.

The most accurate and reliable examinations are those in which, in addition to the other details of technique, some cognizance of the reaction as related to the degree of dilution is taken. In developing the dried blood method various attempts have been made to procure a measured amount of blood at the time of collecting the specimen. The use of the platinum loop, by which drops are collected and deposited separately upon paper or glass and then dried, has been extensively tried. These dried drops of blood are then units to be followed making the series of dilutions. We have found that in us the platinum loop in this way there is a possibility of cons erable variation in the size of the drop. For instance, the l may be filled evenly from side to side, or the drop may be alm spherical, bulging out from the loop, and the quantity o tained may then be two or three times what it would be if loop were simply evenly filled. Another method is that which capillary tubes, as proposed by McFarland, are fil with blood, which is allowed to dry in the tube. The capac of the tube is known and is as a unit and the dilution is ma by crushing the glass in a mortar with a measured quantity culture or water. In another method the blood is dried a weighed and the dilution calculated from the weight. Th method is now used by the Baltimore Health Department. T chief danger in this method is that the serum will separate drops from the clot that forms and in weighing one may ha a greater weight of corpuscles than if the entire mass of blo had dried evenly. When every particle of the dried specim can be weighed the estimation by this method is very accurat Considerable blood is also required in order to make weighin No scheme yet proposed has supplied an easy way of obtai ing a definite quantity of the dried blood, at once exact a suitable for the skill of every one. But like many techn examinations, serum diagnosis requires that operators have thorough acquaintance with the method used. The sam result may be obtained by other observers working in anoth way.

Biberstein has recently deprecated the dried-blood meth as impracticable, saying, as the agglutinating substance exi only in the plasma or serum, and as the volume of corpuscles i a given unit of blood, especially in pathologic conditions, vari in a marked degree, it is impossible to procure an accurate un from which to estimate the dilutions when the corpuscles ar present. Further, he holds that the use of attenuated culture does not facilitate the diagnosis in the dried-blood method The value of the different methods of conducting the diagnos ean only be determined by the results of a large number o examinations. If such examinations can not, in the main, b shown to be correct, we will have to agree with Kühnan, wh concludes that the serum diagnosis requires an exact labora tory study, in which form it is not suitable for general practice The deductions from the examinations of Johnston, Bloch Stewart, Westbrook and Wilson and our own series of 109 pre viously reported results, do not seem to warrant such a limite application. Stewart found in 1000 tests made in Philadelphia 969 cases correctly diagnosed. In the 31 failures reported th reaction was present three times in cases that were not diag nosed as typhoid, while in 28 it was absent in cases that subse quently proved to be typhoid. In our own series of 109 exam inations in 1896, the test failed in 7 instances, the reaction being observed in 5 cases that were not typhoid and being absent in 2 when typhoid was diagnosed. Two of the five cases mentioned, however, presented undoubted histories of having previously had an attack of typhoid fever. The reports of most observers seem to indicate the possibility of a small per centage of failures in making a positive diagnosis, even among those depending entirely upon the examination of the serum, as Comba, Ziemke, Stern and Courmont. They have made the most careful dilutions in series for the different cases that they have examined. Whatever method is used, the failures are due to the absence of the agglutinating substance during the first days of the disease, and on the other hand, to the presence of an unusually strong, normal agglutinating substance.

In regard to the influence of a previous attack of typhoid upon the test, opinions are now giving it less importance be cause it has been found, by repeated tests after typhoid, that the real reaction of the disease disappears in adults during the first six months after convalescence, and in children some what more quickly. (Courmont.) That the reaction does not occur early will be discussed later.

It is admitted that the careful determination of the limits of the reaction, i. e., the dilution in which the normal agglu tinating substance is still active, and the degree of dilution in which the specific substance can be shown to be effective in cases of typhoid, must be differentiated. The experiments of Stern, Sklower and Biberstein have fairly demonstrated that a dilution of serum, 1 to 50, entirely removes the danger of ob serving a normal or pseudo-reaction. As the specific reaction is marked in dilutions much beyond this, it would seem that all danger of mistakes from this cause could be entirely avoided by sufficiently diluting the blood or serum in applying the test. The observation of the limits of the effectiveness of dilutions in producing agglutination is of value in following the progress of a given case, but for the purposes of diagnosis

is simply desired to establish either the presence or the absence of the phenomenon.

The methods used in the diagnosis of typhoid in the laboratory of the Department are the same as those described by Vynekoop in the "Biennial Report of 1895-96." The specimens of blood are obtained without any special reference to the quantity, it simply being requested that enough blood be sent. The cultures that are used are bouillon cultures made from stock cultures on agar. These bouillon cultures are grown at room temperature, and are used during a period of twenty-four to fifty hours after being planted. The stock cultures are also grown at room temperature. In this way typhoid bacilli are obtained that are not very actively motile, but still are always evenly distributed in the bouillon and show great uniformity in their motility.

In making the test, the dried blood is dissolved in distilled water, and enough water is used to give what would be considered a dilution of from 1 to 15 or 20. It is, however, an estimate and not an accurate dilution. After allowing the water and blood mixture to stand a few moments, so that particles may settle, a drop is taken, with the platinum loop, from the top and mixed with an equal sized drop of bouillon culture. This is placed upon a cover glass in a hanging-drop preparation for microscopic examination. It has been found that the amount of color in the drop is of considerable value in determining whether sufficient dilution is present, and from our experience this is taken into account. The dilution in the first examination is about 1 to 30 or 40. In cases where the reaction seems to be unusually prompt, the original mixture of blood and water is diluted with a drop of distilled water, one drop of the mixture and one drop of distilled water, and this is again mixed with the culture and examined, thus making a further dilution. In typic cases, dilutions may be carried on in this manner three or four times before the reaction disappears. The time of observation is continued to six hours before it is positively reported that no reaction is present. The specimens remain at room temperature, but most of the cases showing the reaction are decided in two hours. In some special cases the dried blood and mica slip is weighed, the blood scraped upon a watch crystal and the piece of mica again weighed, the difference in weight representing the blood solids or about 20 per cent. of the original weight of blood. Distilled water to replace the blood-water is added, and dilutions are made by adding more water in the proportions desired. It has been found that at least 5 milligrams of dried blood are required. This amount can be obtained from five large-sized drops of blood. A pipette, graduated in hundredths of a cubic centimeter, is used for measuring the water or culture in making these dilutions. Prof. Klebs has suggested that all the examinations be made in this way, but so far this does not appear to be an imperative necessity.

From January 1 last to August 1, there were received at the laboratory of the Health Department 340 specimens from suspected typhoids. After some time a letter was sent to the physicians who had sent in the specimens, requesting that they return their opinions as to the final diagnosis or outcome of the cases from the observation of the subsequent clinical course. Two hundred and eighty-three such replies were received and tabulated, with the original date of the blanks accompanying the specimens, and with the results of the tests made with the specimens.

The general summary of this tabulation shows the following result: 340 cases examined, 283 clinical reports returned, 57 not returned, 166 reports of occurrence of typhoid reaction and 174 reports of absence of typhoid reaction were sent. Of the 166 cases in which typhoid reaction occurred, 135 were diagnosed clinically as typhoid, 19 were not clinically reported, 9 were not diagnosed as typhoid, 3 cases passing from observation. Of the 174 cases in which typhoid reaction was absent 37 were diagnosed clinically as typhoid, 38 were not clinically reported, 98 were diagnosed as other conditions and one case passed from observation. The correct diagnoses numbered 233, with 46 failures in diagnosis. The number of times the results have failed to correspond with the clinical reports is large, and should not be taken as evidence of the actual value of the test.

These results are not the results of the examination of 279 patients, but the simple results of so many tests. From some of the cases reported specimens were sent in several times and, as will be shown, there is reason for the elimination of a number of the failures. The nine cases in which the reaction was present, but which were diagnosed as not typhoid, have the following causes assigned for the sickness: Acute perihepatitis, subacute indigestion, autointoxication from slight uremia, case well three to four days after examination; acute enteric catarrh, influenza, cerebrospinal meningitis, malaria, enteritis. In none of these was there a record of a previous attack of typhoid. In six of them there was evidence of some intestinal disturbance, as shown by the symptoms enumerated in the blank accompanying the specimen. However, they cannot be explained by offering a doubt as to the diagnosis. We have concluded that they are instances of unusually developed normal agglutinating power. These nine patients were all over 20 years of age, except the last, where the diagnosis of enteritis was returned, a child 6 years of age. The thirty-seven cases where the reaction was absent may be divided into several groups. Ffteen cases seem to be complete failures, as the examinations were made after the first week of sickness, but there were no re-examinations. Nine cases were re-examined and the reaction obtained with the later specimen; in one instance the reaction was absent the sixth but present the eleventh day: another was absent the sixth but present the fifteenth day; another absent the eighth but present the ninth day; and in one of them it was absent the twelfth day but was found on the fourteenth day. There is a possible explanation for two cases in that an interval of five days in one and six in the other occurred between taking the specimen and applying the test. The agglutinating power of dried serum is lost after a time, and the specimens may not have been under favorable conditions to retain this power. In four other cases the blood specimen was too small for a satisfactory test. Among the twenty cases from which the blood specimen was obtained during the first week are two of those in which the blood specimen was small and the two cases in which the examination was delayed; the other two were not in this group. It is possible, then, that twenty-two failures can be explained, but fifteen remained for which there seems to be no explanation. Adding these fifteen to the nine cases of failure in which the reaction was observed, there are twenty-four failures in 279 examinations, or 8.6 per cent. of failures. Further, it is noted that in the group of failures there are three cases of typhoid and pneumonia. The effect upon the reaction in complicated cases of typhoid has not been fully studied. Complications are reported in five cases in the series, that were correctly diagnosed; pneumonia, nephritis and tuberculosis were noted. Ziemke reports cases of pneumonia and tuberculosis where the complicating conditions did not prevent the reaction. It is probable, then, that the failure in these cases is not due to the presence of a complication.

As regards the value of the test in typhoid, it has been shown by numerous published reports of examinations that the results are uniformly positive in well marked cases of typhoid. If the possible cases of failure, viz., the short duration of the sickness at the time of examination, and the absence of a previous attack of typhoid, can be eliminated, the test becomes an absolute sign. Under general circumstances, however, a single test is simply presumptive evidence. It is clearly not an early sign, no earlier in most cases than the recognized symptoms of typhoid. Frequently, however, the reaction is found early, but in these cases it is sometimes difficult to decide as to the real time of beginning of the sickness, as happens in those patients called walking typhoids. The re-examination is a highly important part of the test and is the only way to increase its reliability. Ziemke reports a case of absence of the reaction on the eighth day but present on the tenth. Biberstein reports the test made on verified typhoid patients: 8 examinations the first week with 2 failures, and 32 examinations the second week with four failures. One case was negative at the first examination, made during the first week, and also negative for the second examination, made the eleventh day, but the reaction was obtained at the third, on the eighteenth day. Another case was negative on the ninth and fourteenth days, but positive on the nineteenth day. These results, which are similar to our own, go to prove the value of re-examinations. In the series of cases showing clinically as typhoid, some had the reaction early; one on the second, eight on the third, four on the fourth, and three on the fifth day.

In the examination of cases that are not typhoid, the absence of the reaction during the first week is only presumptive evidence. Bloch and Bates suggest that those cases in which the test is absent on the tenth day of the sickness should be regarded as not typhoid. Among the failures in obtaining the reaction in our series of examinations, are four tests which were made with blood from cases diagnosed clinically as typhoid; one taken from the tenth day of the sickness two on the twelfth and one on the sixteenth day. One of the cases examined negatively on the twelfth day was positively diagnosed on the fourteenth. Apparently there is no definite time for the appearance of the reaction in typhoid, and the fact that a certain number of days of sickness have passed without the reaction does not necessarily justify the conclusion that the disease is absent.

Dr. GEHRMANN is of the opinion, from the results of the examinations as conducted by the department, and from the expressions of opinions of those practitioners who have availed themselves of it, that it is of considerable value in diagnosis. These facts warrant continuance of the typhoid diagnosis by the department, and for the present at least, the use of dried-blood specimens principally, because of the simplicity of the method. Public health authorities are not obliged to employ the typhoid diagnosis as they are the bacteriologic diagnosis of diphtheria and cholera, because the treatment of typhoid is not conducted by health departments, nor are these patients quarantined. Here in Chicago, however, typhoid has been such an important factor in the health of the city, and has such an influence upon the death records, that every means for the study of the disease should be used and improved. If it can help diagnose the death returns more accurately, and if it can assist in showing changes in mortality from time to time, a better basis is offered for observations as to the effect of sanitary measures introduced to control the disease.

Finally, in view of the 8 per cent. of failures in diagnosis that appear from the department's examinations, these conditions should be considered, which may assist in correcting the results: The directions for obtaining and transmitting specimens must be closely observed, especially as to the drying of the blood. Several examinations of each suspect should be made when the first test does not appear to be conclusive. In the laboratory further dilutions of the blood solution must be made and tested in those cases showing the reaction. In this way normal or pseudo reactions can be eliminated. By closely observing these details, it is highly probable that the test will be more exact and the failures fewer in number.

Dr. J. M. G. CARTER of Waukegan followed with a paper on

THE TREATMENT OF TYPHOID NEVER, BASED UPON A STUDY OF SEVENTY CASES.

He drew attention to some thoughts in reference to the treatment, and the resulting conclusions are the outgrowth of his experience. His general experience in the management of typhoid fever was as unsatisfactory as that of many other physicians until he adopted his present line of therapeusis, since which time he has treated seventy cases. His observations before he began the treatment of this series of cases convinced him that the danger in typhoid fever is the pronounced exhaustion present in this disease, which seems to be due to a deterioration or destruction of some of the ultimate cells or tissues of the body, and he believes there is a general consensus of opinion in the profession that this deterioration or destruction is due to the products of the typhoid bacillus. Departures from a scientific line of treatment have been due in the main to a misapprehension of the conditions prevailing in a case of this disease, or in a failure to remember the conditions which should exist in a state of health. The following facts have guided him in an attempt to find a scientific line of treatment: 1. That typhoid fever is a bacterial disease. 2. Typhoid bacilli exist at all times, and in nearly all places, but in varying numbers. 3. Under certain conditions the number or activity of these bacilli, or perhaps both factors, may be increased. 4. The virulence of the disease depends upon the number or activity, or both, of bacilli invading the individual case. A careful consideration of these facts led him to conclude that the treatment of typhoid fever may be reduced to the meeting of three indications, only two of which are always of paramount importance. These are: the maintenance of the patient's strength by proper nutrition; the removal of the cause, and the reduction of temperature.

The determination of what diet is proper in a case of fever is of the utmost importance. He has found very few cases that fare well on beef tea or beef extracts; but usually these foods have produced evil results in his hands. They are heavily charged with uric acid and uric acid compounds, which tend to reduce the alkalinity of the blood (Haig). This may be the cause of the increased obstinacy of the diarrhea in cases fed on beef tea. He condemns the general use of beef tea during the febrile stage of the disease, but it may be given during the defervescence of the fever and in convalescence, with beneficial results in many, if not all, cases. It is his custom to give specific directions as to the amount and kind of food. The food is always prescribed in liquid form and, unless there is some insuperable objection, milk is the universal diet.

The second requirement in the treatment is the removal of the cause. The removal demands first that the introduction of bacilli into the system shall be immediately checked. This is accomplished by sterilizing all food and drink, and by washing the mouth frequently with a solution of boric acid or some other antiseptic. The second requisite toward the removal of the cause is to restore the alimentary canal to its normally aseptic condition.

The third element in this phase of the treatment is to aid the system in its battle with the invading bacteria. The secretions must be assisted, the tissues strengthened and the cells restored. In typhoid fever, even if sufficient nourishment can be given, the enfeebled digestion interferes with its proper preparation and assimilation. Two things can be done: The food may be partially or completely digested, or the native forces of the body may be stimulated and impaired organs strengthened by drugs. Aromatic sulphuric, nitro muriatic or hydrochloric acid may be administered for the purpose of stimulation; and as the heart is the organ most in need of help in this disease, digitalis, strophanthus or caffein may be given and occasionally, if not generally, small doses of nux vomica or strychnia may act well to ward off great exhaustion. General tonics are especially needed during convalescence. The reduction of temperature does not always require special attention, but some cases must be treated with antipyretics or some means of reducing fever. He has never used the Brand system. He ordinarily reduces the temperature by means of quinin or some coal tar derivative combined with a heart tonic, usually acetanilid and caffein; or tepid, cool or cold water is used for sponge bathing. Sometimes he combines these two methods. All cases bear the wet sponging, and most are benefited thereby. Since he has adopted this line of treatment he has treated seventy cases of the disease. These have been of all grades of severity and of various duration. The shortest illness was two weeks, two cases; the longest eight weeks, two cases. The others varied from three to seven weeks, with an average of four and a half weeks. All but one had diarrhea. All had tenderness in the right iliac region or near the umbilicus. Four suffered severe hemorrhages; all but three were delirious. The temperature reached 105 in six cases; 105.75 in one, but usually did not exceed 104.5 degrees F. These high temperatures were seldom present more than one day. The lowest observed temperature occurring as the maximum in any case was 102.5 degrees. All his cases recovered. Before he adopted this line of treatment he averaged about 16 per cent. of deaths in his typhoid cases. He said if he were asked to specify what has caused the reduction of the death rate, and what he believes to be the essential feature of his treatment, he should reply, "abundant nourishment in the form of milk; and the tonics, aromatic sulphuric acid and digitalis." He gives aromatic sulphuric acid and tincture of digitalis combined throughout the entire course of the fever. Sometimes he has continued them a week or ten days after the fever has subsided. These are given from the first, to prevent the heart failure and general exhaustion so common after this disease. The dose varies from five to fifteen drops each every three or four hours, according to the age and condition of the patient and should always be given in water. An abundance of fresh air must be furnished typhoid fever patients.

Of the first fifty-five cases here reported, few were given antipyretics and none the coal-tar preparations. He gave no salol, sulphocarbolate of zinc, salicylate of bismuth or other antiseptic in his treatment of the first fifty-five cases with the exception of aromatic sulphuric acid, and some of the severest forms he has treated are included in that group. Other remedies were given only as were required to meet emergencies as they arise.

To recapitulate: The four most important agents are feeding, sponging, some antiseptic, like aromatic sulphuric acid, and tincture of digitalis or caffein. A happy result of this treatment is a more rapid convalescence than is secured when feeding is not crowded; but the course of the disease is not abridged in many cases.

Mississippi Valley Medical Association.

Twenty-fourth Annual Meeting, held at Nashville, Tenn., Oct. 11-16, 1898.

(*Continued from page 1050.*)

SECOND DAY—MORNING SESSION.

Dr. THOMAS CHARLES MARTIN of Cleveland, Ohio, read a paper entitled

COMPLETE INSPECTION OF THE RECTUM BY MEANS OF NEWER MECHANICAL CONTRIVANCES.

The newer mechanical means exhibited consisted of a set of proctoscopes which are provided with obturators of peculiar form, of an illumination apparatus susceptible of adjustment to a number of positions, and of an improvement on the Yale chair, which facilitates the placing of the patient in the knee-chest posture without requiring any movement on the part of the patient after he is properly seated on the chair. The improvement consists essentially of an upholstered board attached

to the left arm of the chair, and a mechanism controlled by a crank and lever, which form a part of the running gear. The anoscope exhibited is an inch and a half (1.27 cm.) in length, and is designed for the inspection of that part of the rectum which is surrounded by the pelvic floor. The proctoscope is four inches (10.16 cm.) long, which the essayist claims is of sufficient length to reach into the inflatable rectum, and is not of so great a length as to obstruct a complete view of the rectal chambers, and yet is of sufficient length to reach the promontory of the sacrum when the pelvic floor is displaced upward by the proctologist's manipulations. Both these instruments are seven eighths of an inch (2.22 cm.) in diameter; this diameter having been determined upon as the result of calibration in many normal ani. The average diameter of the instrument is equal to the degree of painless expansibility of the anus. The obturators have contracted necks, which constitute these instruments ointment applicators. The middle part of the obturator is channeled, which qualifies the instrument as a nozzle for rectal irrigation; because of its contracted neck the obturator may be used as a self-retaining nozzle. The surface of each obturator is fluted in such a manner that it may be used as a two-way irrigator when properly fixed within its tube. The technique of the inspection is as follows: The patient is required to sit on the chair with his legs crossed and his body facing the knee-board, which is attached to the left arm of the chair. The chair-back is changed to the horizontal by a movement which puts the patient into the Sims posture. The fixed rectum is now examined by means of the short anoscope. After this portion of the rectum is inspected, the chair's lever is extended, its crank turned, and the chair tilted to such an extreme degree of the oblique lateral position that the chair-seat is almost perpendicular and the knee piece, which is a part of the left arm of the chair and against which the patient's knees are pressing, is almost horizontal. Now, at a time when the patient is resting easily in a position which is equivalent to the knee-chest posture, the anoscope is introduced, the obturator withdrawn, and the inspection of the ballooned gut completed. The patient is passively returned to his feet by executing in the reverse order the several steps of this procedure.

Dr. JOHN L. JELKS of Memphis presented a paper having for its subject, "The Relation between the Genito-Urinary Tract and Rectum: the Operations Upon the Female Which Should Receive Priority?" The author champions the assertion that the gynecologist should be as well prepared to remove hemorrhoids and treat an ulcerated rectum as to dissect a cicatrix from the cervix or repair a perineum. The rectal surgeon often finds that, although the rectum is involved to such an extent as to be chiefly complained of, the chief source of danger to the patient is a pus-tube or some other disease. In other words, to relieve the patient and restore her to health and happiness, he must also dissect from the cervix uteri a cicatrix and repair a lacerated perineum. In another case he may be required to sever a urethral stricture.

Dr. WILLIAM B. BRUNS of Deckerville, Ark., read a paper entitled "Rectal Fistula in the Causation of Ischio Rectal Abscess," in which he reported a case with two large pus pockets. He opened the abscess, emptied its cavity, and subsequently did an operation for the removal of the fistula.

Dr. GEORGE D. KAHLO of Indianapolis followed with a contribution on

HYDROTHERAPY IN STOMACH DISEASES.

He said that water is essential to the performance of all physiologic functions; yet its importance as a remedial agent is not so generally recognized. While he does not wish to be understood as opposing entirely the use of drugs in diseases of the stomach, he desires to say that he believes water ranks first among therapeutic resources. It may be used internally as a drink, in lavage as a douche, and as a spray, and externally either applied locally or generally. Its effects, when administered internally depend upon the conditions of the stomach in respect both to taking of food and whether or not there is normal digestion, as also upon the amount and temperature of the water ingested. Cold applications of all kinds are antiphlogistic, and when prolonged are sedative. They are indicated in acute gastritis and in the control of vomiting and hematemesis, but to obtain their full effect it is necessary that their local condition produce an active hyperemia of the skin. Hot applications are useful in the treatment of gastralgia, hyperesthesia, gastric ulcer and chronic gastritis. While he does not ignore the beneficial influences of such agents as diet, exercise, massage and electricity, not to speak of a few of the more important drugs which are thus used, and in obstinate cases especially, physicians are not likely to rely wholly upon any one remedy, however valuable. To be successful, hydrotherapy, like all other forms of treatment, has for its governing factors an exact diagnosis, a thorough knowledge of the patient, a full understanding of the causative influence and a clear conception of the effects of the remedial agent. To this must be added the confidence and co-operation of the patient.

SECOND DAY—AFTERNOON SESSION.

Dr. THOMAS HUNT STUCKY of Louisville read a paper on "Auto-Intoxication of Intestinal Origin." In referring to the clinical aspects of abscess of the liver, he called attention to the essentials in diagnosis, and dwelt upon the history of the disease. He reported three cases. Of these the diagnosis was confirmed in two by postmortem; in the other by aspiration. In all three the abscesses were chronic when they came under his observation. In only one of the cases was there a history of dysentery, although in one case scars of healed ulcers were found in the large intestine. In these cases he finds the enlargement of the liver is upward. Hoover has made a diagnosis of abscess of the liver from a friction sound in the axillary line between the eighth and tenth ribs. The essayist has not heard this sound in any of his cases, but this should be borne in mind when making an examination in this region. Two of the cases reported were mistaken for malaria. This mistake can be avoided by the more general use of blood examinations. The absence of plasmodium would settle this at once.

Dr. J. C. MORFIT of St. Louis read a paper on "The Importance of Early Diagnosis in Surgical Cases." The diagnosis of a disease ought to be the most attractive feature in the practice of medicine or surgery. It is the foundation on which any plan of treatment is applied. The physician should promptly and exhaustively weigh every indication of cause and effect, and apply his therapy accordingly. He has recently seen two cases of pyosalpinx which were cured by surgical interference. Both had been treated by good practitioners, yet neither had made a complete physical examination, and consequently the real trouble was not detected. One was treated for indefinite inflammation of the bowels, the other for malaria. He cites these cases to emphasize the duty of the physician to himself and his patients of utilizing every available means to arrive at an early and positive decision as to what he is treating.

Dr. GEORGE W. JOHNSON of Dunning, Ill., presented an excellent essay on

GONANGIECTOMY AND ORCHIDECTOMY FOR HYPERTROPHIED PROSTATE IN THE AGED.

In this paper he reported five cases, and made a second report on twenty-eight cases previously recorded. After referring at length to the literature of the subject and reporting his cases in detail, Dr. Johnson arrives at the following conclusions:

1. All cases of prostatic hypertrophy should be given at least two weeks of palliative treatment, with rest in bed. This treatment should be regulated according to the conditions.

2. If no relief is had from this line of treatment, a thorough and systematic examination should be made for vesical calculi and polypi, as well as structural and malignant disease of the prostate and bladder. Cystitis, acute prostatitis, and prostatic abscess should always be borne in mind. The urine should be frequently examined. In cases of cystitis the uterus should be catheterized to determine the condition of the kidneys. This can now be easily done by the Harris instrument. If by digital examination per rectum the prostate is found to be enlarged, its approximate dimensions should be noted and urethral measurements taken. The patient should then be as well prepared as possible for operation. Having decided upon operative interference, the operator alone must decide upon what operation he will do. Gonangiectomy or orchidectomy offers less risk to life.

3. Chloroform should be used, as it requires less time and is not so irritating to the kidneys. The operation should consume as little time as possible. Gonangiectomy or orchidectomy can be done quicker and with less shock than any other operation. Strict attention should be given to the after-treatment.

4. The time for relief after operation is irregular. In his experience the relief has not been as clearly defined as to hours and days, nor as immediate as in most cases reported. In but two cases has the catheter been required after operation. Enuresis was constantly present in his cases, for from one to six weeks after operation.

5. More immediate relief is given to cases of orchidectomy, and the prostate grows softer and diminishes more rapidly in such cases than where gonangiectomy is done.

6. The kidneys should be carefully watched and supported after operation. Mental symptoms appeared in three of his cases, two of which were due to renal disease.

7. Long standing and troublesome herniæ can be successfully treated in the aged. He has successfully treated eighty-

four such cases, in none of which has a recurrence taken place up to this time. Of this number, he has encountered the condition of congenital with acquired hernia in six cases. In five of these cases the acquired sac was outside of the congenital one. In one case it was within it.

8. Bassini's operation was resorted to in all but five cases, and in these Fowler's method was used.

9. Cystic degeneration of the testicles was met with in twenty-five cases. These usually had chronic hydrocele also, and were always cases of hernia of long duration.

10. When the intestines occupied the scrotum in large mass, they were returned to the abdominal cavity three or four days before operation. In many cases there were adhesions preventing reduction.

11. Examinations were always made for vesical calculus, but none found.

12. The somatic condition is greatly improved, and when bilateral orchidectomy was done, the patients became obese.

13. A thorough line of palliative treatment of from two to six week's duration, with rest in bed, was given each patient.

14. In cases of herniotomy, the patient was kept in bed from three to five weeks, unless very asthenic, with the hope of getting better organic union and thereby minimizing liability to recurrence.

THIRD DAY—MORNING SESSION.

Dr. GEORGE BEN JOHNSTON of Richmond, Va., delivered the Address on Surgery. His subject was "The Progress of Renal Surgery." Renal surgery is altogether a matter of the past three decades, having had its commencement with the successful nephrectomy performed by Simon in 1869. Dr. Johnston dealt with nephrectomy; floating and movable kidney; renal and ureteral calculi; neoplasms of the kidney; tuberculosis of the kidney, which when not a part of a general miliary tuberculosis, may have its origin in the kidney, or may be an ascending affection from the bladder. Hydronephorosis also received attention. He made no attempt to arrive with anything approaching completeness at the progress or present status of surgery of the kidney. He endeavored merely to point out some of the advances which have been made in this field of surgery, and to indicate the present views of surgeons upon some of the most important points. Especially did he emphasize the conservatism which has developed along that line, and which now marks the attitude of the surgeon, in this as in other branches – a conservatism which realizes that the glory of surgery is not in amputation and in mutilation, but in saving important organs.

Dr. WILLIAM R. PRYOR of New York City presented a paper entitled "Why I Perform Vaginal Ablation in Pelvic Inflammatory Cases." He stated why, when he performs hysterectomy in pus cases, he prefers the vaginal route. He dealt with the subject under the respective heads: incision; separation of adhesions; direction of effort in the enucleation; hemostasis; drainage; hernia; accidents; instruments; narcosis and time; convalescence and results.

Up to October of this year he had performed vaginal hysterectomy for pelvic inflammatory lesions, exclusive of fibroids and cancer, eighty times. Since that time he has made the operation a number of times. No case has died, either from the operation or from complications. He has no fecal fistulæ to report, no sinuses, no vesico-vaginal fistulæ, and no hernias. There have been no cases of phlebitis and no intestinal obstructions. The vagina has in no case been shortened. For the technique of the operation he refers to the *American Journal of Obstetrics*, Vol. xxxviii, No. 6, 1898.

Dr. SHELBY C. CARSON of Greensboro, Ala., presented "A Consideration of the Limit to Operative Gynecology," the purpose of which was to emphasize the importance of medical gynecology; to show that surgery can not advance a legitimate claim to even the larger portion of this great field. A beautiful tribute is paid to this branch of medicine by applying to it the eloquent eulogy of Daniel Webster upon justice. Surgery as a science is pronounced as practically without limit, but as an art it has probably reached the summit. What constitutes true surgery is then discussed, the author quoting not only from text-books, but from the latest utterances of such men as Wyeth and Annandale, proving that surgery, of all other branches, is based upon principles, and hedged in by fixed laws; that when these are disregarded there is no true surgery. The folly of the ablation of the ovaries and tubes in many cases is made manifest. The nerve element in woman is closely considered, the anatomic connection between the nervous system and the genitalia being defined. As a consequence, neurasthenia is a frequent result, for which surgery affords no relief.

Dr. J. WESLEY BOVEE of Washington, D. C., discussed THE THERAPEUTIC VALUE OF LEAVING LARGE QUANTITIES OF NORMAL SALT SOLUTION IN THE ABDOMEN.

He reports six cases to illustrate the usefulness of this procedure. In a number of cases the effect was not so marked and in a few but little benefit was apparent. The first case was one of papillomatous broad ligament cyst; fifteen liters normal salt solution left in abdomen; marked increase in urine. The second case was one of large multiple uterine fibroma, and large ventral hernia; secondary operation; three liters normal salt solution in abdominal cavity and one liter under breast, with marked urinary increase. The third case was one of papillomatous fibro adeno-cystoma of right broad ligament; eight liters normal salt solution left in abdomen; considerable urinary increase. The fourth case was one of multilocular ovarian cyst; 5000 c.c. normal salt solution left in abdomen; increased excretion of urine. The fifth case was one of multiple fibroma of the uterus and pelvic adhesions; great shock; two liters of normal salt solution left in abdomen; increased urinary excretion. The sixth was one of multilocular cartilagino cystoma of left ovary; seven liters normal salt solution left in abdomen; excretion nearly doubled during the following six days.

The marked stimulating effect of the remedy on the kidneys is noticeable in all these cases. Penrose has found that the average amount of urine excreted during the first twenty four hours after operation in 100 cases was 13.4 ounces; for the second, 14.6 ounces, and for the third, 19.8 ounces. He also found that for the first day the maximum amount of urine was 27 ounces. In many of the cases of the essayist this maximum was much more than doubled. While the number of cases in which he has used these large quantities of normal salt solution is small, the effect should encourage a further application of the remedy in proper cases. Not one evil result of the solution was observed in any of the cases.

Dr. F. F. BRYAN of Georgetown, Ky., read a paper entitled "A Plea for Pelvic Cellulitis and Peritonitis." He reported twenty cases, and drew the following conclusions: 1, Cellulitis and peritonitis are important manifestations leading to the greatest amount of suffering that woman is heir to; 2, their recognition and the retention of their nomenclature should keep physicians constantly on the watch for them; 3, their proper treatment in the early stages will obviate these latter evils to a great extent, as cellulitis and peritonitis are easily curable in the early acute stages; 4, that, should opportunity for an early cure not be offered, then the chronic cases should have the medical and minor gynecologic treatment mentioned by him, under which many will be cured, others obtain relief, and a respectable quota will of necessity have to turn to surgery for their cure.

(To be continued.)

Cincinnati Academy of Medicine.

Regular Meeting, October 24.

Dr. HORACE WHITACRE presented a patient with chronic tetanus. There was no history of injury, nor could physical examination find any source of irritation. The principal symptoms were stiffness of the muscles of the neck, especially the sterno-cleido mastoids; inability to fully open the jaws; and pain involving the jaws. The trouble had lasted about a week. There was no fever. There was no history of taking medicine for any purpose, so that strychnia poisoning could be safely excluded.

Dr. C. R. HOLMES presented a patient from whom he had eight days previously removed a piece of steel that had flown from a hammer, penetrated the cornea of the left eye, the iris, the lens, and lodged in the vitreous in the neighborhood of the optic disc. He had made an incision about a quarter of an inch long, downward and inward, half of the incision in the lowest part of the cornea the other half in the contiguous part of the sclera; the lips of this incision had been retracted, and the ocular electric magnet plunged into the vitreous. The first attempt failed, but on withdrawing the magnet a second time the small piece of iron was found sticking to the magnet. He had made the incision a large one so that the foreign body would run no danger of being brushed off in withdrawing the magnet. Though the incision was necessarily made through the ciliary region, healing had occurred without the least infection. The traumatic cataract formed he intended to remove at some future time. In this connection Dr. Holmes reported two other cases of foreign body in the vitreous. One, in which a piece of copper was the offending body, was removed through a large sclero-corneal incision with a pair of mouse-toothed forceps, the foreign body kept constantly in sight by the

flected light of the ordinary forehead mirror; the second attempt succeeded in catching the bit of copper and withdrawing it. The traumatic cataract formed was subsequently removed, and now the patient has perfect sight, with proper glass. The third case was a pin that had penetrated the cornea, all underlying structures of the globe, and finally the sclera posteriorly. The head of the pin was seen sticking out from the external wound and was readily withdrawn. There were no sequelæ.

Dr. RICKETTS reported a case of myoma of the left broad ligament, which had been growing rapidly for a number of years. He had used a Langdon rectal tube thrown around the pedicle to stop hemorrhage, and with this as an aid enucleation was comparatively easy and quickly effected. The specimen weighed sixty-five pounds. The primary incision was from the ensiform cartilage to the symphysis. As the woman had only been operated on that day it was too early to say as to the ultimate outcome. The time of operation was fifty-eight minutes.

Dr. HENRY BETTMAN presented a specimen of pachymeningitis hemorrhagica interna; cause unknown. There was also found in this patient profuse hemorrhage in the colon. He also presented a specimen of fibrinous pericarditis, cor villosum, but on account of the rarity of the specimen, but that a diagnosis had been made of fibrinous pericarditis, lobar pneumonia, and pleurisy with effusion all on the left side and just a few hours before death, all of which points were borne out by the findings of the postmortem table.

Dr. JOHN E. GREIWE presented a paper on "The Pathologic Anatomy of Syphilis of the Spinal Cord." Numerous illustrations and microscopic sections added much to the value of the paper.

Denver and Arapahoe Medical Society.

Regular Meeting, Oct. 25, 1898.

Dr. J. N. HALL read a paper on

ACUTE PNEUMONIA

and reported sixty-nine cases of acute lobar pneumonia which he has treated in the non mountainous regions of Colorado since 1893. He has excluded from this number all cases of bronchopneumonia, tubercle pneumonia, typhoid and hypostatic pneumonia, and all pneumonias resulting from trauma. He tablulated all his cases as follows: Males, 42; females, 20; babies, 7; involvement of right lung 41; left lung 25; both lungs 2, one was not noted; involvement of the whole of right lung, 2; whole of left, 3; right lower lobe or lower and middle, 31; left upper lobe, 5; left lower, 17; both lower, 1; all of right and lower lobe of left, 1. Fatal results, 15, or 21.7 per cent. Nine died on the sixth or seventh day, five from the third to fifth day; 1 on the ninth day. Direct cause of death: Probably diphtheria, 1; neglect and exposure, 2; delirium tremens, 1, and exhaustion, notably of the heart, in the others. In one case edema of the same lung which set in on the fifth day directly contributed to the fatal termination. Two cases were abortive, one in a man of 70, and the other a boy of 7 years; in both cases the disease was cut short on the third day. In two families, three cases appeared in succession, and one patient nursed a fatal case of penumonia during the preceding week. The janitor of a school, who complained much of the irritating effect of the dust arising from sweeping, suffered two attacks six months apart. Another case, a boy of 15 years, who swept a schoolhouse, suffered from an attack. In six cases the disease occurred as tubercular patients, but none of them were tubercular pneumonia. In one case resolution was delayed for six weeks. Three cases known to have been addicted to use of alcohol all died, one of which developed delirium tremens. Profuse expectoration of clear blood occurred in one case. Of the 69 cases, 9 occurred during the first five years of life, with one death; 8 during the second five years, with 1 death; 8 during the second decade, all recovering; 14 during the third decade with 4 deaths; 10 in the fourth with 2 deaths; 8 in the fifth with 4 deaths; 5 in the sixth with 2 deaths; 2 in the seventh with 1 death; and 4 in the eighth decade all recovering. The highest temperature recorded was 106.4 degrees, in a fatal case, a boy of 2 years, and 105.9 degrees in a boy of 7 years, who recovered. One case occurred suddenly and with great severity while the patient was at a ranch, far from help. In two cases the sick one was alone, and delirium coming on early, he was unable to feed himself or keep up fire. One of these, emerging from his delirium on the second morning, crawled to the stable and loosened all the horses, turned on the windmill that they might not suffer for water and crawled back to his hut to await his doom, since it was twenty-three miles to town.

In conclusion: The known frequency of pneumococcus in the sputum rendered the occurrence of three attacks of pneumonia in two sweepers of schoolhouses of great interest, for one can not but suspect that the dust of the schoolroom must generally contain pathogenic germs. The study of these cases offers us reason for thinking that pneumonia is materially different from the disease in any other region between us and the Atlantic.

Dr. WHITNEY, in discussing Dr. Hall's paper, dwelt upon the difficulty of diagnosticating cases of lobar pneumonia in the aged and children, in both of whom the pathognomonic signs of initial chill, rusty sputum and crepitant râle are, as a rule, absent. He lays great stress, from a diagnostic standpoint, upon bronchial respiration and dullness occurring in the same lung. He fully agrees with Dr. Hall that pneumonia is not more fatal in Denver than in any other part of the country. He called attention to a statement made by a German physician that he had not lost a single case out of some seventy cases of pneumonia. He gives his patients salicylate of sodium from the start, 10 grams every hour for twelve hours, none for the next twelve hours, and then resumes the treatment. Dr. Whitney expects to apply this treatment in the next favorable case.

Dr. SPIVAK reported a case of typhoid fever, which showed on the fifth day after admission to the hospital, unmistakable signs of pneumonia. He acted upon the suggestion of Dr. Whitney, and all the signs had disappeared on the following day. He gave, however, only 7 grams of salicylate of sodium every three hours. He continued the treatment, 5 grams t.i.d. and the patient made a perfect recovery after a somewhat tedious right phlebitis.

Dr. JAYNE said that the somewhat greater mortality in mountainous regions is due to the fact that the patients are either not taken care of, or are subjected to great exposure during transportation to town or hospital.

Dr. C. K. FLEMING read a paper on

THE ABUSE OF THE MECHANICAL TREATMENT OF UTERINE DISEASES.

He said: "A question that is frequently put by the physician to one engaged in practice of gynecology is: 'What is the reason that there seem to be more pelvic diseases in women than formerly?' In reply, I have been obliged to state that I believe that the increase of pelvic diseases is due, in a large measure, to the abuse of the mechanical treatment of uterine diseases." He drew the following conclusions:

1. The vaginal speculum is capable, through lack of asepsis, of carrying infection into the vagina and thence to the uterus.

2. The uterine sound should have no place in the armamentarium of the general practitioner.

The results from intra-uterine medication are, to say the least, unsatisfactory, and may be decidedly harmful.

4. The rapid dilatation of the cervical canal is the ideal method, but the operation should be performed in the home of the patient or in the hospital.

5. The uterine curette should never be used in the office.

6. Pessaries are useful only in the treatment of displacements, are only palliative, and should not be used unless radical means are refused.

Dr. JAYNE accorded with the statements of Dr. Fleming, and said that since the gynecologists have become skilfull in bimanual manipulations the use of the sound is superfluous. He very seldom uses it, and only in cases where its introduction would be of absolute diagnostic value. When sterilization is impossible, he dips the sound in pure carbolic acid and washes off with bichlorid solution. He has seen many cases where a pessary produced perfect and permanent reposition of the uterus.

Dr. STOVER said that the specialists have so much encroached upon the general practitioner that the tongue depressor will sooner or later be deemed a dangerous instrument except in the hands of an otologist.

Dr. SPIVAK was in perfect accord with the general statements of Dr. Fleming, but thought the introductory remarks of the speaker somewhat misleading, as one would be liable to conclude that the increase of pelvic trouble in the female, if there is an increase, is due to the slovenly ways of the general practitioner. He thinks the general practitioners, especially of the last decade, are fully impressed with the theory of asepsis, and that they practice what they have been taught. He thinks that the syringe nozzle used by women indiscriminately before they ever consult a physician is in many cases a hot-bed of infection.

PRACTICAL NOTES.

Collodium Bandages.—These are recommended by Schliep for hernia of the umbilicus, and other hernias in which ether spray proves ineffective. A thin pad of cotton three or four inches square, is dipped in the collodium and applied with gentle pressure.—*Munich Med. Woch.*, September 27.

Sodium Salicylate in Facial Paralysis.—Catrin reports a case of severe facial paralysis following an attack of acute articular rheumatism three months previously, which he cured in twenty-three days with 74 grams of sodium salicylate without electricity or massage.—*Semaine Méd.*, October 12.

Edema of the Eyelids.—Dechamp announced at the recent French Congress of Ophthalmology that he had been very successful in curing essential edema of the eyelids with Lannelongue's injection of 1 to 20 zinc chlorid, once a week for six to eight weeks.

Puncture of the Colon in Typhoid Fever.—The *Semaine Méd.* of October 12 reports the favorable result of puncturing the transverse colon in a case of typhoid fever. It was so enormously distended that it had displaced the heart and threatened immediate cardiac collapse. The introduction of a small trocar allowed the escape of the gases, and all the threatening symptoms subsided at once.

New Collateral Route.—The creation of a new collateral route for the blood of the portal vein in cases of cirrhosis of the liver has been successfully accomplished by S. Talma, who sutured the large omentum and gall-bladder to the abdominal wall, and latter the dilated spleen in one case, a boy of 9 years. Two years have since passed, and the normal coloration of feces and urine and the absence of icterus show that the liver is performing its function well, although it is and always will be much indurated. The lad seems perfectly healthy.—*Semaine Méd.*, September 28.

Local Anesthesia from Blood Expulsion.—S. Kofmann writes to the *Cbl. f. Chir.* of October 8 that he was at first much pleased with the success of Obert's improved local anesthesia (JOURNAL xxx, page 736), but discovered later, to his surprise, that the anesthesia was complete without the cocain. Driving out the blood had alone accomplished the result. He describes several operations on the foot and lower arm, including an osteomyelitis of the fibula, during which the patient experienced no pain except from the tightness of the ligature. After the ligature is applied a certain interval must elapse, as with the Oberst method, before the anesthesia becomes complete.

Curettement in Pharyngeal Catarrh.—A. Malherbe describes in the *Rev. de Laryng.* October 1, his complete success in curing seven cases of chronic posterior pharyngeal catarrh by curetting the nasopharynx, in ethyl bromid anesthesia, the patient lying on a table with his shoulders at the edge and the head hanging in forced extension. The infected masses drop into the mouth or nasal passages, whence they are removed with hot boricated irrigation. Quite an effort is required to dislodge the hard masses sometimes encountered. He applies, a week later, a tampon of cotton moistened with iodin 1 gram, potassium iodid 3 grams, aq. dest. 40 grams. With this exception he abstains from douches, sprays and other local applications. All his cases have been permanently cured (eight to nine months), and the voice has returned to normal.

Treatment of Varices.—Excision of the veins and the ablation of a large cutaneous flap in the leg, has been found very satisfactory in treatment of varices by E. Schwartz, who has performed the operation on fifteen patients, all permanently cured, the wound healing by primary union. The elasticity of the skin is such that it can be sutured together after the removal of the spindle-shaped flap extending the entire length of the inner side of the leg, 5 to 6 cm. wide at the widest part, and it will stretch to form a natural elastic stocking sure to hold the veins of the leg firmly in place. If there is an ulcer the flap should include it. The patient is kept in bed three weeks, the leg raised on a cushion. His patients have all resumed difficult occupations, as washerwomen, carpenters, etc., and the ultimate results have been perfect.—*Presse Méd.*, September 7.

The Physiologic Dressing.—Augè and Casteret have been testing sodium bicarbonate, recommended by the Russians, and find it fully as effective as antiseptics in dressing suppurating wounds, and in many cases more so. It promotes epidermization much more rapidly, suppresses pain and inflammation in from twenty-four to forty-eight hours; dries up the suppuration rapidly, favors the secretions by cleansing the pores, while increasing phagocytosis and restoring the alkalinity to the blood. This latter they consider so vital that they assert that the resistance of the organism to infections is proportionate to the alkalinity of the blood, and that the effect of artificial serum is due to this cause. They have tested the bicarbonate on a number of suppurating gangrenous wounds, panaris, phlegmonous abscesses and dermatoses, and they conclude their very favorable report with the remark that the still unattained ideal dressing would be one which killed the microbes like the antiseptics—which the bicarbonate does not—while still respecting the integrity of the cells.—*Presse Méd.*, September 18.

Ocular Affections of Utero-Ovarian Origin.—In ocular affections connected with utero-ovarian trouble—which are more frequent than usually supposed—Professor Mooren relieves the tenacious hyperesthesia of the retina with the following: Potassium bromid 4 grams, lupulin 6.5 grams, pulv. rhubarb 1.5 grams, extract of centaurea, q. s. Make into 120 pills. Take three pills three times a day. If the ovary is the cause of the ocular troubles he gives: Atropin sulphate 3 centigrams; licorice powder 2.5 grams; extact of licorice q. s. Make sixty pills. Take three pills a day. If the reflex ocular irritation depends upon some simple functional disturbance in the uterus or ovaries he administers Paracelsus' elixir in the dose of two half teaspoonfuls a day for several weeks, in the case of robust patients, otherwise reducing this amount to a quarter teaspoonful, or merely several drops during the few days preceding the menses. A copious metrorrhagia may induce a serous effusion in the retina, or a neuro-retinitis, which are relieved by cold compresss or ice to the back of the neck, with leeches to the mastoid epiphyses and saline purgatives if necessary. Local treatment to remove the cause in all cases.—*Semaine Méd.*, September 28.

Modern Treatment of an Infection.—Professor Grasset observes that this treatment is based upon the principle that we can not attack the microbe directly, but must direct all our energies to stimulate and augment the spontaneous resistance of the organism. He rejects serum treatment, except for diphtheria, also antiseptic, "as internal antisepsis is extremely difficult to realize and can only be exceptionally accomplished, and also antithermics, as they are useless and even dangerous in the treatment of infective diseases, except in certain rare and well-defined cases. His treatment is therefore restricted to: 1. The régime, stimulating, tonic. 2. Blood-letting, white and red, that is, venesection and diuretics, sudorifics and purgatives. 3. Water in every form and at all temperatures, baths, lotions, injections, drinks, etc. Water acts as a stimulant and diuretic. The cold bath benefits less by the effect on the temperature than by facilitating the elimination and oxidation of the toxins, stimulating the organism and soothing the nervous symptoms. 4. Injections of salt solution, or artificial serum, which have a three-fold therapeutic effect. They stimulate and remove the arterial hypotension and protect against anemia, while they also help to eliminate the toxins and at the same time produce unmistakable reactional phenomena.—*Progrès Méd.*, September 24.

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SATURDAY, NOVEMBER 5, 1898.

THE MICROBE OF CONTAGIOUS PLEURO-PNEUMONIA.

The essential lesion of contagious pleuro-pneumonia cattle (a peripneumonia of the French) consists in e distention of the interlobular connective tissue aces by a large quantity of inflammatory exudate. a drop of this serum is inoculated into the subcu-neous tissue there will appear, after from nine to enty five days, an inflammatory engorgement of rying dimensions, which is often followed by death, the autopsy there is found a large quantity of llowish serum in the tissue spaces, which is here d there coagulated into gelatinous masses. The udation sometimes amounts to several liters. Ani-als that recover after a slight sickness of a few days come refractory to experimental inoculation as well to natural contagion.

This fluid, so virulent for animals of the bovine pecies, is without action upon other species. These cts were, according to NOCARD and ROUX,[1] demon-rated by WILLEMS in 1850.

The demonstration of the specific microbe of pleuro-neumonia, its isolation and cultivation, would con-itute a very desirable progress. Heretofore all at-mpts, in innumerable ways, in that direction have iled.

The introduction of collodion sacs for the purpose f cultivating microbes in the living body, such as as practiced by METCHNIKOFF, ROUX and SALEMBENI, their study of the toxin and antitoxin of cholera, ppears to have been a very happy idea. The wall of collodion constitutes a perfect barrier to the microbes, as well as to the cells. The microbes may multiply in the interior of the sac, because they are protected from the phagocytes. On the other hand, this wall is permeable to fluids and substances dissolved in them, forming a perfect osmotic membrane. In this way poisonous substances produced by the bacteria pass outward, so that the microbic auto-intoxication does not take place, and, finally, the substances in the serum of the animal used may enter the sac.

NOCARD and ROUX employed such sacs in the study of the microbe of pleuro-pneumonia, inoculating the bouillon which they contained with a trace of the serum of pleuro-pneumonia and then inserting the sacs into the peritoneal cavity of rabbits. In from fifteen to twenty days the sacs were found to contain an opalescent fluid, slightly albuminous, which contained, neither cells nor microbes that would grow on the ordinary media. With a magnification of 2000 diameters and a very strong light, a great quantity of very small mobile points were seen, of such minuteness that it was difficult to say, even after staining, what their exact form could be. No such bodies occurred in the fluid of a sac of collodion, inserted in the same manner without having been inoculated with the pleuro-pneumonic exudate. Sub-cultures of the fluid of the first sac gave exactly similar results. Incubating rabbits, which become emaciated, may die before the day fixed for the autopsy. The blood of the organs of such rabbits failed to give any growths of bacteria after inoculation upon various media and even into collodion sacs. Death resulted —in all probability an intoxication due to outward diffusion of the products of the microbe. Here is a new example of an animal being very susceptible to the toxins of a microbe to which it is insusceptible.

Collodion sacs, inoculated in the same way as described and inserted into the peritoneum of guinea-pigs, did not give any growths. Hence, it may be concluded that it concerned a special micro-organism, which multiplied in successive cultures in the medium produced by osmotic changes in the interior of the fluid in the collodion sac inserted into the rabbit's peritoneal cavity. This micro-organism was found by successive inoculations into cattle to be the virulent agent of pleuro-pneumonia.

Subsequently it was found possible to cultivate this microbe outside the abdomen of the rabbit by inoculating sterilized bouillon which had been allowed to remain in the peritoneal cavity of a cow or of a rabbit in collodion sacs for several weeks. Then the bouillon acquired the properties necessary for the growth of the pleuro-pneumonic microbe in the test-tube; further experiments showed that the addition of four drops of the serum of the rabbit or of the cow to 5 c c. of a solution of peptone[2] rendered this also

[1] Le microbe de la péripneumonie: Annales de l'Institut Pasteur, xii, 8, p. 240.

[2] As recommended by Martin, Annales de l'Institut Pasteur, 12, January, 1898.

a suitable culture-medium, so that it is now possible to cultivate the microbe of pleuro-pneumonia in the ordinary way. It will now be possible to study its toxin and make attempts to modify its virulence.

These extremely interesting observations point the way in which it may be possible to study certain other diseases, the specific microbe of which have not yet been isolated. It is very interesting also to note that NOCARD and ROUX have brought into prominence a micro-organism of such minuteness that the ultimate limits of our present means of magnification have practically been reached. Really the final criterion of the presence and multiplication of a micro-organism in the cultures described is furnished by inoculations.

TYPHOID WITH PROMINENT RENAL SYMPTOMS.

While typhoid fever presents many distinct types, as afebrile, ambulatory, abortive, hemorrhagic, and qualifying adjectives of this kind are a positive aid to the student, attempts at such classification as pneumo-typhoid, nephrotyphoid, and names of like character, can not but make the subject extremely intricate, even when they are manifestly designed to indicate the organ or system upon which the brunt of the attack is falling. It were better then to speak, not of nephrotyphoid, but of typhoid with prominent renal symptoms. This variety is not uncommon, as a review of many recent reports of typhoid will show. The renal complications may occur at the height of the disease, when no particular trouble in diagnosis occurs, or nephritis may occur as a sequela. Occasionally, as in a case reported by WILSON, a primary attack apparently involves the kidneys only, an acute nephritis of typhoid origin, if we may so use the term, the intestinal symptoms being completely masked by those of the urinary. Usually, in this class of cases, a relapse occurs, in which the abdominal typhoidal symptoms become in their turn prominent, the kidneys, strangely enough, suffering but little. Even when a relapse does not occur, the Widal test will remain the deciding factor, and it might be stated here that in every case of acute nephritis, the agglutination reaction should be carefully employed for the following reasons: While, as a rule, the diets of nephritic and typhoid patients are the same, yet it must be admitted that many good practitioners allow their nephritic patients fruits and even occasionally a little solid food. When it comes to the question of drugs it can be readily seen that a positive diagnosis is of the utmost importance; for while on the one hand, in nephritic cases, calomel and the saline cathartics are unquestionably indicated, on the other, in typhoid, such remedies would in many instances work great harm, causing perhaps a perforation of the bowel, severe hemorrhage, or both. As regards the care of the excreta a point of considerable practical interest is presented. When the diagnosis of typhoid nephritis is made, the urine and feces promptly subjected to the action of disinfectants as all typhoid cases; but suppose the diagnosis to made merely of acute nephritis with the typh origin undiscovered; naturally, in such a case, efforts at disinfection are made, and one might rea imagine another Plymouth, Pa., experience.

The symptoms of an ordinary acute nephritis greatly resemble a typhoid at the onset. The on of nephritis may be gradual (though usually sudd and accompanied by severe headache, pain in back and limbs, nausea and vomiting, a slight fe pallor of the skin, and perhaps a slight edema of eyelids, the only distinctive feature being the urin changes, diminution of the amount of urine even total suppression, high specific gravity, presence large amounts of albumin, and microscopically, ca epithelial and blood. If it were not for the Wi test it might be totally impossible to diagnose co-existing typhoid until perhaps the rose-colo eruption, blood in the stools or the symptoms of p sible perforation suddenly opened our eyes. another difficulty presents itself: In the early sta of typhoid, the agglutination reaction is not in dence, often appearing only after the characteris temperature curve, the eruption, and other abdomi symptoms have practically settled the diagnosis. behooves us then to always bear in mind that in cases of typhoid infection, a negative result to serum test in the early stages of the disease will warrant us in concluding that the reaction will occur later on or that the disease under considerat is not typhoid. The practical point in all this is th in all cases of nephritis it must always be remembe that no matter how apparently clear the etiologic fa tors may be, there is always a danger of coincide typhoid, and we should be on our guard not only to institute treatment which would be deleterious a possible enteric fever, but to also adopt measur tending to the prevention of the spread of the disea

MALARIAL AFFECTIONS OF THE EYE.

It seems strange when one considers the va amount of space given to rare ophthalmoscopic affe tions in the various text-books on the eye that h little or no room is allotted to the effects of the pla modium malariæ on this most important structur Possibly this is on account of a natural hesitancy report or describe, as malarial, eye affections in whic no blood examination has been made; possibly it because the observers have not looked upon th malaria as the exciting cause. Among the extern eye diseases depending upon the malarial parasit probably a serpiginous ulcer of the cornea is the mo common. Phlyctenular keratitis also occurs, and oc casionally a herpetic eruption involving the upper li and supra-orbital region; indeed the two latter condi tions may co-exist. These affections have all occurre

e experience of the writer and, in all of them, an mination of the fresh blood revealed the presence e plasmodium.

ARR, in the *British Medical Journal* of September in his article on "Malarial Affections of the Eye," es that tropical practitioners are continually on watch for ocular manifestations which experience taught them are characteristic of malaria, cases th characteristic symptoms, characteristic ophthalscopic symptoms, and above all characteristic pathgy." He thinks that all ocular troubles the result alarial infection have their starting-point in disbances of circulation, and classifies them under heads of neuritis, hemorrhage into the retina, no-choroiditis, and effusions into the vitreous. RR has given a most complete record of neuritic ptoms, symptoms that will readily distinguish the arial neuritis from all other forms, and includes following: The sufferer as a rule has had several cks of paludism previous to the onset of the pres- symptoms. At the beginning of his ocular ble complaint is made of supra-orbital neuralgia great aversion to light; night blindness is also sent. Perception for colors is not reduced unless plete atrophy supervenes. One of the most charristic symptoms, according to YARR, is the great inution of visual acuity, its sudden increase on ingestion of quinin, and a perhaps subsequent even under the influence of that drug. The thalmoscopic examination reveals "swelling of the pilla, which assumes a greyish red color, edema of circumpapillary retina, with effacement of the pillary margins, and enlarged and tortuous veins." over 30 per cent. of the cases, he describes small inal hemorrhages confined for the most part to the riphera. One symptom, due to the presence of the smodia within the capillaries, "peculiar coloration the papilla, *tiente rouge-grisâtre*," is said to be thognomonic. In conclusion it is stated "about 80 r cent. of cases terminate in a partial atrophy, indited by varying diminution of visual acuity, irregucontraction of the field, and slight greyishness of e disc; many end in apparently complete recovery; me rare cases go on to complete atrophy." The fection is usually binocular. Under retinal hemorage two chief varieties are described; the small periteral and the large peripapillary, in which the rmer are by far the more common; indeed YARR ggests that probably many of the slight interferces of sight that occur in ague are due to these inute punctiform hemorrhages associated with ematous retinæ. The large hemorrhages are most ble to be present in those afflicted with pernicious ver, in the stage of so-called malarial cachexia, and ay be so large as to result in immediate and total olition of sight. In about one-fifth of all the interittent fevers, there develops an edema of the retinal ructures which as a rule promptly subsides and ultimately completely disappears with the cessation of the disease. Occasionally, however, the process continues, involves the deeper ocular tunic, and the inevitable contraction of the new-formed connective tissue brings about an atrophic condition of retina, choroid and disc. Under effusions into the vitreous, YARR mentions a condition in which a peculiar whitish reflex is observed when the reflected light is used. This, it is thought, is due to serous infiltration into the vitreous, superinduced by paludism; in one case reported it certainly responded to the administration of quinin. Among the occasional ocular diseases due to malarial poisoning may be mentioned periodic blue vision, central scotoma, sudden and persistent amaurosis, and amaurosis ending in atrophy. In conclusion YARR warns the oculist to always bear in mind that amaurosis may be caused by the quinin which the patient is taking, a blindness of several days even being due occasionally to this cause.

THE COMPULSORY NOTIFICATION OF VENEREAL DISEASES.

It may be stated as a general hygienic principle, that is, one in regard to which medical authorities are generally agreed, that compulsory notification of infectious diseases is an indispensable adjunct to the medical defense of the public from their ravages. The public itself, with its dread of these maladies, far greater than that felt by the physician himself, falls in readily with the idea, and endures and imposes inconveniences none the less serious because they are voluntarily assumed. This is true as regards some disorders at the present time that were not long since hardly reckoned as seriously infectious, and which were consequently allowed to propagate themselves freely, in many communities at least. It is probable, or at least possible, that the number of disorders that will be held as reportable is by no means complete, and that with our increasing knowledge of germs and their action in producing disease, we will come to consider it necessary perhaps to demand isolation and full sanitary precautions in many disorders now considered harmless as regards contagion or infection. The medical and lay public are both passing through an educational stage in this regard, and the tendencies of the former, or a large and influential part of it, are decidedly on the advance in this respect at the present time.

A recent item of news from Germany stated in effect that an ordinance had been passed requiring physicians to report as infectious diseases all cases of venereal disease, when such could be done, in their opinion, without detriment to important interests. The leaving of the matter thus to private judgment must practically emasculate the law, but that does not affect the fact of the recognition of the principle that these affections ought in the interest of the public health to be reported. It is, when stated baldly, a

little odd that disorders, one of which is not only directly contagious by personal contact, but may also be communicated by intermediaries, clothing, drinking-vessels, etc., as well as transmitted to offspring, and that has as its consequence some of the most serious disorders to which mankind is liable, and another that, according to the latest view, is responsible for a very large proportion of the special disorders of the female sex, should not only be not subject to compulsory notification, but should, of all others, be most strictly protected by law. If violations of medical confidence are likely to be anywhere followed by exemplary legal punishment, it is in just these cases, where the peril to the community and to individuals is overlooked as compared with the effects of revelations of what are assumed to be disreputable facts. The result is innumerable innocent victims by marriage and otherwise, and if we are to accept the estimates of some specialists as to the prevalence of gonorrhea in the male population of our cities, and consider them in connection with the views of modern gynecologists as to the evil effects of this disease, conjugally acquired, upon female health, the risks an innocent girl runs in marriage seem formidable enough to warrant almost any legal restrictions to meet the evil. The laws that only compel one quasi-criminal class of female unfortunates to submit to legal regulations, while possibly of some utility in military garrisons, have not proved their efficiency in the defense of the general public, and their success in any case is disputed and disputable.

Whether a law requiring compulsory notification would be practicable for all these cases is perhaps open to question; that it would be evaded to a considerable extent may be assumed as certain. The liability to heavy penalties and damages for non-reporting would probably strengthen the law and make it more effective. The record might even be only a temporary one, the physicians' reports being filed alphabetically and destroyed after a certificate of recovery. In any case they could be kept as it were confidential, and reference to them allowed only under pledges of secresy and for thoroughly valid reasons. Under such conditions compulsory notification of venereal diseases might be to a certain extent a public protection, at least a partial safeguard against infection of the innocent. How far the German regulation will be effective is another question, and a rather more dubious one.

At the present time our health boards require notification of only a few acute infectious diseases, but there are chronic ones equally infectious and hardly less deserving inclusion in such a list. It is true that as a rule they are less immediately dangerous to human life, but they are many of them more repulsive and ultimately as fatal. Leprosy is one of these about which there is no question whatever; the need of its isolation is clear, and yet there are lepers going about in our large cities, pursuing ordinary avo tions and constantly coming into contact with oth who may receive their contagion. The danger fr this disorder, however, is infinitesimal in compari to that from the multitudes who carry about w them the infection of syphilis, which is innocen acquired, it is safe to say, a hundred times more f quently than is that of leprosy, and which has in possibilities of evil hardly less than those of the ot more dreaded disorder. It is a matter certainly interest that the principle of its sanitary control legal notification has been recognized as well as t of the hardly less formidable gonorrhea, and t further development of the idea will be worth obse ing. As physicians we can not be indifferent to measure which, whether fully practicable or not, yet an effort in the right direction. The compuls notification of these diseases, if it can be practic carried out and thoroughly enforced, ought to be a sanitary measure free from the objections to the ol registration laws that apply to only a limited porti of one sex, while it should be a still more efficient to public sanitation and incidentally also to bet morals.

WHY SHOULD WE ESTIMATE FOR UREA?

We have been taught that the excretion of uric ac to urea stands in the relation of 1 to 33. HAIG stat "My researches have extended over a large part the last twelve years, but taking only the figures the longer periods of my estimation of my own exc tion, we get a total of 2351 days, in which 28,447 gr. uric acid, 805,432 gr. of urea and 127,725 of acid (rec oned as oxalic acid) were excreted, giving a relation uric acid to urea of about 1 to 28, and a relation of ac to urea of 1 to 6.3."

If we desire to estimate the amount of uric acid a given sample of urine, and turn to the process fi devised by HOPKINS, we might be astounded at t lengthened process necessary to obtain the amount such a common ingredient as uric acid. Indeed, t quantitative estimation is hardly ever resorted to the present day, on account of its tediousness a certain errors which might ensue from the expertn required in making the estimation. The simple qua titative method of precipitating the uric acid by aci ulating the urine with hydrochloric acid and collecti on an equipoised filter is also open to serious and fa lacious results. Therefore, it saves time and troub to say that the daily excretion of uric acid to ur stands in the relation of 1 to 33 and, after estimati the amount of urea, it is an easy matter to compu the amount of uric acid excreted daily in a give quantity of urine.

The specific gravity method is also simple in est mating the amount of urea. For instance, a method given which states that: "A given specimen of urin neither albuminous nor saccharin, containing a norm

proportion of chlorids, and having a specific gravity of 1020–4 is a quantity of 1500 c.c. (50 oz.) in twenty-four hours, may be taken as a standard normal specimen containing 2 to 2.5 per cent. of urea. These conditions being observed, a higher specific gravity would indicate an increased proportion, and a lower a diminished proportion. Under these circumstances, a specific gravity of 1014 indicates about 1 per cent. of urea and of 1028 to 1030 about 3 per cent." Here again there is room for unbounded fallacy.

But what of the more accurate methods for the estimation of urea, as now taught by the foremost medical colleges? DAVY'S method, which depends upon the decomposition of urea by means of sodium hypochlorite, has certain objections, because it is stated that NaClO in the presence of caustic alkalies causes the evolution of only one-half of the nitrogen of urea, the remainder being retained as a cyanate. With the KJELDAHL method the writer has had no experience. The method, however, which seems to be the favorite is that known as the "hypobromite," and depends upon the decomposition of the urea in the urine by means of sodium hypobromite (NaBrO), with the production of sodium bromid (NaBr), water, carbon dioxid (CO_2) and the evolution of nitrogen. After correcting for temperature and barometric pressure, the nitrogen in the hypobromite method can probably be most accurately estimated. Suppose that we have before us a given specimen of urine and we desire to find the amount of urea by the hypobromite method and, after completing the examination in detail, we find the amount of urea present in this given specimen. It is true, we have at last obtained the correct data in regard to the amount of urea in the urine, but it is also true that we have not determined the amount of metabolic activity nor the amount of animal food eaten the day before by the patient, and upon these factors depends the average normal amount of urea in the urine. Therefore it is hard to devise a *standard* normal amount of urea, because it varies with katabolism and with the amount of animal food giving a great amount of urea, and vice versa.

What is the normal amount of urea excreted by man? MUSSER states that the average daily amount of urea excreted by an adult in the twenty-four hours is about 500 grains. According to VON JAKSCH it is from 496 to 620 grains. PURDY places it at 512.4 grains; NEUBAUER and VOGEL from 387 to 620 grains; TYSON from 310 to 620 grains. SIMON states the case very explicitly when he says: "The amount of urea is well illustrated by comparing the condition of the poorly nourished North German laboring population with that of the well-fed merchants, the excretion of urea in the former amounting only to from 271 to 519 grains of urea and in the latter to 465 or 620 grains." A careful review of this subject therefore discloses the fact that the average daily amount of urea excreted by man varies from 271 grains (SIMON) to 630 grains—the maximum amount designated by other writers. Since the normal amount of urea in the urine depends upon katabolic activity and upon the amount of nitrogenous food ingested, and since this normal amount is so variable, we may well ask of what real benefit is the estimation of urea in the urine?

THE ARMY MEDICAL DEPARTMENT OF MANILA.

Reports recently received at the Surgeon-General's office from Manila, Philippine Islands, from Lieut.-Colonel HENRY LIPPINCOTT, chief surgeon, Department of the Pacific, give a view of the condition of medical affairs at this far-away military station. As yet the men of this command have undergone none of the fatal experiences of the troops in the home camps. Typhoid fever existed in Camps Merriam and Merritt, San Francisco, Cal., which they occupied prior to their embarkation, but the infected men were left behind in the field hospital at the Presidio. The troops were necessarily closely packed on shipboard during the long voyage, but they had distilled water to drink and, instead of the sinks which spread the infection in our insanitary camps, they had latrines flushed by a constant stream of sea water. The disease was thus held in abeyance, but we may expect to hear in progress of time of the development and spread of typhoid fever among them unless medical and military officers profit by our experiences in this quarter of the globe and take especial care of the sanitation of their barracks and quarters. It is interesting to remark that the landing of supplies from the transports through the surf at Cavité and Camp Dewey was as difficult and dangerous as the landing at Daiquiri and Siboney, and that heavy rains fell constantly during active operations in the Philippines as in Cuba, yet although the troops, at the date of Colonel LIPPINCOTT'S dispatches, had been ashore at Manila for as long a period as the Fifth Corps stayed in the vicinity of Santiago, and had been subjected to some hard field service in their attack upon the Spanish lines, there had been no such breakdown of the health of the men as occurred in General SHAFTER'S command. This alone demonstrates that there were were climatic conditions and local infections in the one case that were not present in the other, and goes far to answer the question which has been put so often recently: Who is responsible?

The number of deaths from disease and accidents since the first fleet sailed from San Francisco (May 25) has been only 29, with 14 of which typhoid fever is credited. The other items in the bill of mortality are: Pneumonia 3, dysentery 2, meningitis 3, and 1 each from septicemia, paralysis, cardiac rheumatism, endocarditis, appendicitis, insolation and morphin poisoning (suicide). This for over three months in a command of 18,000 men is equivalent to an annual

rate of only 6.44 per 1000, which would be considered an excellent record for troops well cared for in good barracks in times of peace.

The lists of battle casualties show that 11 men were killed and 12 officers and 104 men wounded, 1 officer and 7 men dying from the effects of their wounds. In the attack on Manila, August 13, the field hospitals were not moved forward, as Camp Dewey was only four and a half miles from the scene of action. All the wounded were dressed and comfortably in bed by 7 P.M. of the day of the attack. No amputation was considered necessary, although there were some severe wounds complicated with fracture of the limbs. The field hospitals were removed from Camp Dewey, August 17, to the Spanish military hospital in Manila. This hospital is in fair repair and has room for 400 patients. Prior to placing our people in the wards the woodwork was cleaned and thoroughly disinfected. It is probable that some of the sick at Cavite will be transported to this establishment.

During the voyage to Manila Colonel LIPPINCOTT prepared a circular for the guidance of medical officers and typewritten copies bearing the approval of the commanding general, were issued before the attack. The instructions thus conveyed proved of great value at a time when the conitions are said to have been most trying. It is officially reported that the Surgeon-General may well be proud of the field and hospital work of the volunteer medical officers.

The health of the command is stated to be fairly good, although the sick list is larger than it would be were the troops better situated in a sanitary way. They are all quartered in buildings; some are well housed, others are not. There is a great tendency to stomachic and intestinal troubles referred to the difficulty in restraining the men from eating and drinking unwholesome articles. Dysentery is common and malarial fevers are of frequent occurrence.

CORRESPONDENCE.

Judge Kohlsaat and the Probate Court.

CHICAGO, Oct. 31, 1898.

To the Editor:—Some of the statements which have appeared in the medical press of late criticising the official acts of Judge Kohlsaat appear very strange to the thousands of citizens of Chicago who have known him, as has the writer, for twenty years or more. His reputation as lawyer and judge is so very different from that sought to be given him by the critics, that the thought at once arises that there must be a mistake somewhere. If it were a fact that Judge Kohlsaat habitually, or even occasionally, ruled differently in regard to physicians from his rulings with others, that fact alone would show his unfitness for the bench, and not only physicians but others should unite to secure his defeat. The writer, having waited in vain for some one to make reply to these criticisms, and thinking it due to the profession that they should be informed if these things are so, has undertaken a somewhat hurried investigation on his own account and desires to publish his results and conclusions. And believing it but just that Judge Kohlsaat should have the opportunity to be heard in his own behalf, the writer addressed a note to him in which he asked him if it were a fact that he as a judge ruled that he "would not in any case allow more than one bill for medical services to be collected against an estate in his court," and that he would not allow more than $2 per visit to a physician under any circumstances." Judge Kohlsaat's reply is certainly sufficiently explicit on these points. After stating that these criticisms had been called to his attention, but that he had not thought them worthy of notice, he says: "I answer the statements you quote categorically." "I have not stated, nor have I held that I would not allow more than one physician's bill against an estate." "The claim is too ridiculous for consideration." "The records of the court utterly refute the charge." "I suppose I did refuse some doctor's bill in some particular case, owing to the circumstances of that case, but I do not recall any one such case." "No such general line of action has ever suggested itself to me." "As to the other matter, i. e., that I will not allow to exceed $2 per visit, I can only appeal to the record, in which the statement is contradicted a hundred times." "Both of these allegations are the malignant offspring of some disgruntled claimant who makes no allowance for the particular facts in the case as they appeared to the court at the time, or the harassing and oppressing duties of the probate court in this county." "Any one acquainted with the working of the court here will know that the constant and imperative effort of the court is necessary in order to make the administration expenses as small as possible. To do this in the great volume of business, requires almost infinite patience and diligence. Lawyers, doctors, administrators, executors, guardians and undertakers have often taken exception to what seemed just to the court. Certainly any one of these classes has just as much reason to complain as have the physicians."

It so happened that Dr. M. P. Hatfield of this city was the first one to whom the writer spoke about this matter, and he at once said that in one case coming under his personal knowledge, a case in which he had been called to give testimony as to the value of medical services, $3 per visit had been allowed by Judge Kohlsaat.

Personal examination of the docket of the probate court shows incontrovertibly that Judge Kohlsaat's statements are correct. Running through the records of November, 1897, far enough back to be of unmistakable value, we find, as can any one who chooses to make the examination, numerous cases where more than one physician was allowed to collect from the same estate, and where more than $2 per visit was allowed. A few instances only will be quoted. Both Dr. W. K. Harrison and Dr. E. J. George were allowed their bills for services against the same estate, the former being allowed his charge of $2 per visit in all cases but one, in which a charge of $3 was allowed. Drs. St. John, Loring, Warren and Butler were allowed bills aggregating five hundred and fifty-odd dollars against the estate of Peter Ross, two of the charges being consultations at $25 each. One of these bills was reduced from the claim as presented, but the aggregate allowed was as stated above. Dr. A. V. Hutchinson was allowed $2, $3 and $4 a visit. Dr. P. H. Matthei was allowed $3 per visit, and Dr. J. S. Mitchell $3 per visit and $2 for office consultation. These examples could apparently be multiplied indefinitely were not this sufficient.

The writer has no particular concern that Judge Kohlsaat should be re-elected, and would not object to any fair and honest means brought to bear to prevent his re-election, but he does resent that any one should attempt under false pretenses to use the intelligent medical profession to further a personal grudge or to pull political chestnuts out of the fire.

Respectfully,

HORACE M. STARKEY, M.D.

Judge Kohlsaat Defended.

CHICAGO, Oct. 31, 1898.

To the Editor:—Your issue of Oct. 8, 1898, contains a letter
m Dr. D. H. Galloway in which it is made to appear that
dge Kohlsaat refuses to allow: 1, more than one physician's
against an estate; and 2, more than two dollars per visit,
matter what the service may have been.

Here are a few facts found in the records of the Probate
urt, available to the whole world and ready to the hand of
most casual inquirer:

Estate of Sarah A. Toohy. Docket 43, p. 274. Claims
owed Nov. 22, 1897: Dr. D. R. Brower $153. Dr. Jas. H.
eridge $200.

Estate of Daniel Butters. Docket 42, p. 230. Claims allowed
y 25, 1897: Dr. Frank Billings $100. Dr. R. D. MacArthur
4. Dr. Jos. M. Patton $150.

Estate of Jos. T. Torrence. Docket 43, p. 151. Claims
owed Dec. 31, 1896: Dr. John H. Chew $25. Dr. A. H.
oke $25. Dr. Frank Billings $50. Dr. R. R. Campbell $325.
R. D. MacArthur $2,385.

The humor of Dr. Galloway's letter lies in the fact that there
hundreds of similar illustrations to be had by merely open-
a book.

As to the "two dollar a visit" statement consider the fol-
ing:

Estate of Isabella L. Dunning. Docket 48, p. 148. Oct. 24,
8. Allowed: Albert B. Strong, M.D., five dollars a visit.

Estate of Daniel Butters. Docket 42, p. 230. May 25, 1897.
owed: Dr. Frank Billings, seven visits, $100.

Estate of Edwin Pardridge. Docket 41, p. 196. July 22,
6. Allowed: Dr. E. O. F. Roler $10 for a night visit.

Illustrations similar to the foregoing exist score upon score,
d these are cited for information of physicians, most of
om are interested. PHILIP CLARKSON.

1009 Ashland Block.

Chloroform and Gaslight Intoxication.

200 OAKWOOD BOUL., CHICAGO, Oct. 25, 1898.

To the Editor:—A note under the above title, in the JOURNAL October 22, suggests a degree of ignorance or carelessness the part of the doctors responsible for the occurrence, hich I hope is, but may not be, entirely absent from the pro-ssion in this country. At any rate, it seems to me to be of fficient importance to justify a further notice. The case is follows: A patient was anesthetized with chloroform in the esence of a gaslight. The narcosis lasted three hours and ring that time the doctors and nurse experienced a spas-dic cough. Patient died in six hours, the nurse in twenty-ur hours and the doctor was "at the point of death" for two three days. The fatal results were attributed to the inhala-n of the fumes produced from the combustion of the vapor chloroform in the gas jet. The products of the combustion chloroform are chlorin and hydrochloric and carbonic acid. There is a very simple way of overcoming this difficulty and e which I have very frequently employed with entirely satis-ctory results. This consists in accompanying the vapor of loroform with the vapor of ammonia; the latter neutralizes e noxious gases, producing the chlorid and carbonate of mmonium, which are entirely innocuous in the quantity pro-ced. This may be accomplished by pouring a little ammonia ter on a piece of gauze or a towel and waving it in the air casionally or hanging it up near the gas and replenishing the mmonia from time to time. So little is required that the odor ammonia is scarcely noticeable.

A few months ago I wrote to a firm and suggested that this t be stated in their price list, where so many useful facts e given, and they replied that the enormous quantity of loroform vapor present in some operating-rooms made this impracticable if not impossible; that the amount of ammonia necessary would make the room uninhabitable. I have repeatedly used this method and have never had any bad effects and indeed none present has ever complained of any inconvenience from either the ammonia or the chloroform and sometimes the operators did not know that any such procedure was being carried out.

A surgeon told me that he performed an operation in one of Chicago's hospitals, which lasted a little over an hour and that during the operation the anesthetizer administered to the patient, the attendants and the air of the room *eight ounces* of chloroform. The only remedy for such a condition would be to get another anesthetizer.

If this suggestion is borne in mind when giving chloroform at night, there need not be any more deaths from chloroform and gaslight intoxication.

Yours very truly,

D. H. GALLOWAY, M.D.

Chairman's Address of the Section on Neurology.

ST. LOUIS, MO., Oct. 25, 1888.

To the Editor:—When I began to get my address ready for my quarterly in order to place it for future reference, I sent galley proof to the secretary of the Section. The paper has been printed, but three months after the meeting at Denver.

I did as I have done heretofore, having no desire to antedate the JOURNAL, but being absent over three months with a sick wife, did not know that you had not published it. You can do as you please about abstract, but I do not think Section work will appear as complete as the ASSOCIATION would desire for future reference with only abstracts of president's addresses.

If you print only as an abstract kindly put this in your correspondence column, as I wish to go on record with the explanation and gentle protest, my gentle and amiable friend.

I do not think you are wise in excluding any address for the good of the ASSOCIATION, no matter what authors may do with them as to other journals, especially the quarterlies.

If you decide to publish only an abstract kindly say where the full text may be found, but, if you do, please record my kick. . . . Very truly yours,

C. H. HUGHES, M.D.

ANSWER:—The full text of Professor Hughes' article may be read in Brother Hughes' valuable journal, the *Alienist and Neurologist* of July, 1898. We regret extremely that the good brother could not wait until the publication of the other papers of the Section on Neurology in the JOURNAL, but having decided otherwise, our Chairman's address necessarily falls under the rule.

The Proposed Medical Examiners' Bill.

CHICAGO, Oct. 28, 1898.

To the Editor:—In the October issue of the *Chicago Medical Recorder*, there appears a report of some remarks I made at a recent meeting of the Chicago Medical Society, in reference to the proposed "Medical Examiners' Bill" for Illinois. The report simply contains my objection, and makes no mention of the remedy I suggested for the evil pointed out. I happen to know that this omission is not the fault of the stenographer. For this reason I ask the JOURNAL to privilege me with a few remarks on the proposed bill.

This Medical Bill, originated and prepared by physicians, is accordingly *pro bono publico*, i. e., for the purpose of excluding from the practice of medicine all persons not educationally fitted according to orthodox ideas. This is a laudable purpose and a child of a good principle. But the promoters of the proposed bill, as it now stands, are so generous that they propose to secure the purpose of the bill by the sacrifice of another good principle, viz: a strict adherence to principle, or the preservation of personal identity, while homeopaths, eclectics and

regulars all have more or less recognition by the intelligent laity. They certainly differ very materially in the principles of internal medicine, which is surely a very important matter, so that, for regulars to officially endorse homeopaths and homeopaths to endorse regulars, as will practically be the case with this proposed Board of Examiners, we will have an exhibition of acknowledged bankruptcy of medical principles, because to the physician, the focal point of all medical knowledge is therapeutics. It is proposed that opposites shall officially endorse and recommend opposites to public favor! Now, my suggestion, made to the Chicago Medical Society, was that the avowed object of the proposed bill would be secured by the several schools simply co-operating along the lines common to all, and which would include everything in the usual medical curriculum, excepting internal therapeutics. This would preserve self-respect all around, while the diploma of a "recognized" medical college, which is to be a prerequisite for admission to the State's examination, would be a reasonable guarantee of qualification in internal therapeutics. That other States have omitted this feature can not be an argument for the same fault in Illinois, unless it is good reasoning to say that because others have been weak and foolish we should be weak and foolish also. Men holding opposing principles can and should respect each other's honesty of opinions, and for the very same reason they can not afford to unnecessarily compromise their principles, especially their professional principles, for any purpose whatever. "High potencies" are either correct or they are monstrous mockeries.

Respectfully, J. SANDERSON CHRISTISON, M.D.

Conservative Treatment of Intestinal Occlusion by Internal Electricity.

CHICAGO, Oct. 31, 1898.

To the Editor:—The above caption is the title of a very interesting paper by R. P. Johnson, M.D., in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 22, 1898.

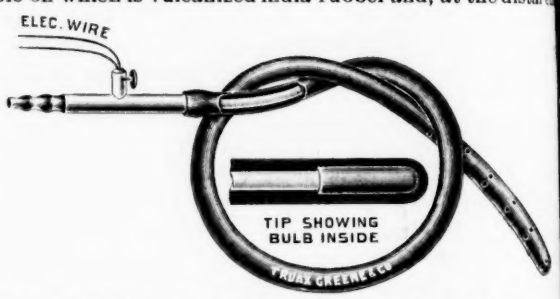
It is not the purpose of this reply to criticise adversely the idea or method of treatment set forth in said article. There are, however, one or two points to which I wish especially to call attention.

1. The method and manner of application embodied in the paper is the same as that given to the medical profession by M. Boudet of Paris eighteen or twenty years ago, and subsequently by Dr. M. A. Cleaves of New York, and others. As the essayist quotes quite extensively from Dr. Larat, I take it, from the quotations used, that he refers to Dr. Larat's article on "Intestinal Occlusion Treated by Electricity," in "Bigelow's International System of Electro-Therapeutics," which also gives a very good account of Boudet's efforts and experiments, as well as a clever description of his electrode and the salt solution used by him. Consequently he must be more or less familiar with these facts and, therefore, I think, should have given Boudet at least a little credit for his original work and untiring efforts. Dr. Larat also states that it was Duchenne who first directed attention to the treatment of obstruction of the bowels and habitual constipation by means of electricity, and as he used the faradic current almost exclusively in his experiments, physicians as a rule have had recourse to the same current. However, in 1876, Leroy d'Etiolles observed that smooth muscles were not affected by faradic excitations, and that, on the contrary, they are the most powerful in causing contraction of striated muscles. Later, Boudet insisted on this same distinction, basing his conclusions not so much on the cases he had successfully treated by electric injections as on the physiologic observations made by experiments on animals. He also observed that to give the intestines a galvanic current of sufficient intensity and duration to produce the desired effect with the metallic electrode, there was great danger of causing an eschar of the mucous membrane. To avoid this, he invented an electr which consisted of a gum tube, with holes in the side, plied with a hollow metallic mandrin to which could be att a fountain syringe and binding-post for fastening the ba cord. He used a salt solution for the injection, and the vanic current, which he interrupted every half minute.

2. To use the author's electrode, as directed in his paper mandrin, which is exposed to the salt injection, will bec corroded, and the oxychlorid of the metal of which it is m set free and driven into the tissues, a condition which mi be undesirable.

3. I understand that the Doctor has patented his electr I shall not, in this paper, attempt to discuss *pro* and *con* t phase of the subject, but suffice it to say that such is certai not in keeping with the "Code." As the method of treatm and similar electrodes have been used for years both in th country and Europe, he surely has no claim to priority, or inality, uniqueness or first discovery.

In view of these deductions and facts, and recognizing t importance of electric injections as recommended by Bou and others in the treatment of intestinal obstruction a habitual constipation, I had constructed for my use by Tru Greene & Co., Chicago, an electrode which they have seen to name "Dr. J. R. Pennington's Colon Electrode," a cut which is herein represented. It consists of a flexible metal cable on which is vulcanized india-rubber and, at the distal e



a disc of soluble copper, carbon, zinc, gold or platinum ma be attached, according to the purpose for which the electrod is to be used. To the proximal end may be attached a foun tain syringe and tip of battery cord. This electrode is enclosed in a smooth, soft-rubber colon tube, so that the current only comes in contact with the mucous surface through an aqueous medium injected through the tube. With this electrode n salt or other solution can come in contact with the flexible mandrin to corrode it, and with it we not only get the com bined effect of water and electricity, by which the mucous membrane of the entire bowel is given an electric bath and peristalsis actively stimulated, but because of the variety of discs, one can also carry out indications for cataphoric medica tion or the diffusion of medicated solutions into the diseased tissues, a method which seems to us might be of some import ance in the treatment of enteritis, intestinal catarrh, fermentation, putrefactive conditions and mucous colitis, as well as relieving obstructions of the bowel and habitual constipation.

Columbus Memorial Bldg. J. R. PENNINGTON, M.D.

Separate Cranial Bones.

ADRIAN, MICH., Oct. 25, 1898.

To the Editor:—The case of Dr. Roseberry, reported in the JOURNAL of October 15, reminds me of an almost identical one which occurred in my early practice. Mrs. R. M., of about 30 years, was delivered May 16, 1871, of a full-term child, male and still-born, the bones of whose cranium were completely separated, and feeling, as Dr. R. expressed it, like a bag of bones. This was her second confinement, and the labor was normal and easy, the child weighing six pounds. Her previous child was a strong, healthy male. The woman died a few years subsequently of tuberculosis. I have no further history of the case. Yours truly, WM. E. JEWETT, M.D.

PUBLIC HEALTH.

...cal Attendance at Theaters.—The Paris *préfet de police* has ...d each theater to make arrangements so that a physi... will always be present from the beginning to the end of ... performance, and also at the general rehearsals.

...agiousness of Pneumonia.—The contagiousness of Pneu... is not generally accepted, but Dumont has observed five ... in forty in which the coincidence was so striking that he ...iders mild prophylactic measures should be extended to ... disease.—*Nord Med.*, October 1.

...lth in Chicago.—The Health Department's report for Sep... gives 1780 deaths for the month, a rate of 1.10 per 1000, ...mpared with 1.04 per 1000 for September, 1897, and 1.02 ... September, 1896. The principal causes of death were: Dis... of the nervous system 219, consumption 182, diarrheal ...se 155, other acute intestinal diseases 179, heart diseases ... typhoid fever 65, cancer 63, pneumonia 61, diphtheria and ...branous croup 52, bronchitis 49. The deaths of persons ... 1 year of age numbered 470 and between 1 and 5 years 232.

...lteration of Food and Drink.—A writer in the London *Lancet*, ...ust 27, points out the fact that, in these days, the adul... ...ions of food are generally made with substances that are ...esome, or at least not markedly injurious to health. ...e adulterations, therefore, come under the head of com... ...cial cheats rather than sanitary offenses; they are cheap ...titutions rather than poisonous sophistications. Marga... ... is an excellent food substance, but it is not butter; and ...eaten flour is good, but the fact of coloring it with turmeric ... not make it mustard. Gooseberry wine, again, is an ...ellent beverage, but it can not with the smallest degree of ...th be called champagne, even though the name has been ...pted for years by the public as a synonym for cheap cham... ...ne. Lord Palmerston, it is said, once told a deputation of ...e merchants who waited on him that there was never a good ...mpagne year in France unless there was a good apple crop ... Normandy. We should like to think that this was because ... season which was favorable to the production of good ...pes was also favorable to the production of good apples. ... also stated that many owners of large pear orchards in ...nce are under contract to send their entire produce to a ... of wine merchants in the champagne district. It is evi... ...t, if this be true, that a large section of the public is ...uiled into regarding cider, perry and gooseberry wine as ...mpagne. In other words, pears, apples and certain berries ...dently afford abundant material for making a very popular, ...ellent and palatable drink. In spite of this fact people are ...stantly in pursuit of some fruit-juice beverage. But really ...d cider, perry and the like are not easy to procure except ... the immediate neighborhood of their production. Under ... falsely described and tempting title of champagne, how... ...r, the public eagerly drinks, smacks its lips and calls it an ...cellent wine. And thus the immoral traffic in substitution ... encouraged and sustained, to the enormous profit of the ...ler and greatly to the detriment of the purse of the consumer.

Formaldehyde House Disinfection.—The Schlossmanglyco formol ...paratus (JOURNAL, xxx, 397) has proved extremely effective ... the Manheim General Hospital, where it has been given a ...orough trial. The glycoformol is a solution of formalde... ...ydum solutum, glycerin (to prevent polymerization) and ...ater. It is heated over a spirit lamp inside a ring shaped ...ssel, in which water is also vaporized. The steam from both ...sses together into four brass receptacles from which it is ...ced out at a pressure of half an atmosphere, forming a whirl... ...g vapor that sets the entire air of the room in motion, so ...nse that it is impossible to see an electric light or sunlighted ...ndow through it. Three hours are sufficient to kill all pos... sibly accessible germs, even anthrax spores dried on a thread and placed in the toe of a boot or in a slightly opened trousers pocket, but the fumes do not penetrate to the center of a thick mattress in this time, and these are disinfected by impregnating them with 2 per cent. solution of formol. While this apparatus surpasses all others to date in the rapidity and effectiveness of its work, it has the great disadvantage that the pungent odor of the formaldehyde clings to the room for several days, and can not be removed entirely even with ammonia spray, which it is impossible to use on painted surfaces. Rabbits are killed by the glycoformol fumes but are not affected by the fumes from any other apparatus. The apparatus costs eighty marks and is guaranteed to disinfect eighty cubic meters. Czaplewski's experience with it has not been equally satisfactory, and he states that the glycerin leaves a sticky deposit on objects. He also finds that an ordinary steam spray inhaling apparatus will answer the purpose equally well, as the glycerin is unnecessary, the effect depending upon the moisture. With this simple arrangement, similar to Lister's carbolic spray, he secured as good results as others with the Schlossman, spraying 600 to 750 c.c. water to a liter of formalin in an hour, and thus disinfecting a space of fifty cubic meters. The main point is plenty of formaldehyde and plenty of steam in the finest spray. If there is dead air or the surface is already wet, the formaldehyde does not penetrate so effectively.—*Munich Med. Woch.*, October 11.

Tuberculosis in North Carolina.—The bulletin of the State Board of Health contains some striking reflections on the prevalence of tuberculosis in that State. The figures are given as approximate and as an aid to a gradual opening up of the subject. Estimating the population of North Carolina at 2,000,000 and the annual death-rate at 15 per 1000 there are 30,000 deaths in the State annually. The usual proportion of the deaths from tuberculosis to the whole number of deaths is generally agreed to be one in seven. That would make over 4000 persons dying of that disease every year. Previous to death they were of course in the last stage of the disease and, therefore, virulent foci of infection, and should, according to the resolution, be removed to the sanitaria to prevent infection of other members of the family. Taken at this stage very few cures could be hoped for, but owing to scientific care and treatment, many would be carried over to the next year, and the number of this class would therefore be still larger the second. On a basis of 4000 deaths, it would seem to us fair to assume that there are twice as many in the intermediate and incipient stage, and as they hold out a hope of cure they should have the advantages of the sanitaria. So that the total number in sight to be cared for is 12,000. To allow for any exaggeration, let us deduct 33.5 per cent. That would leave 8000. If 25 per cent. of these are able to attend a private institution, 6000 would be left to be cared for by the State. At $150 per patient, the cost for maintenance would be $900,000 per annum; counting in interest on plant and incidentals we will call it $1,000,000, which is about the present total cost of our State government, including its eleemosynary institutions. Everything has to have a beginning, and the outlay at first would be small and the good accomplished proportional, but it is very difficult to make a beginning when the end is far out of sight. If funds were available, say at the rate of $10,000 per year, the greatest amount of good would doubtless be obtained in such a State as North Carolina by educative measures, and not by the establishment of sanitaria. Unless the public and the lay press, in the future, show a greater alacrity to grasp the importance of the subject, than they have in the past, several years must elapse before radical preventive measures will receive support. By missionary labors from county to county, from hamlet to hamlet, it is probable that ten times as much could be accomplished in preventing the spread of tuberculosis, with the same amount of money, as could be done through sanitaria. God speed every effort to stay the "great white plague," which robs so many of our homes of their loved ones, but let us be sure that our efforts are wisely directed.

BOOK NOTICES.

The Principles and Practice of Hydrotherapy, a Guide to the Application of Water in Disease, for Students and Practitioners of Medicine. By SIMON BARUCH, M.D. With numerous illustrations. Pp. 435. New York: William Wood and Company. 1898.

There is no question that in the general neglect of hydrotherapy the profession deprive themselves of a most valuable therapeutic remedy, and this volume, better than any other with which we are acquainted, systematizes and makes available modern methods of therapeutic use of water.

The work treats of the physiologic effects of water; the anatomy and physiology of the skin; functions of the skin; physical properties of water; rationale of the action of water in health; the effects of hydriatic application upon the distribution and composition of the blood; influence of hydriatic application on the respiration, on the muscular system and temperature; the practice of hydrotherapy; ablution; half bath; affusion; sheet bath; cold rub; wet pack: wet compress; precordial compress; the full bath; the cold full bath; therapeutic indication of the full cold bath; fever; reason for therapeutic supremacy of the cold bath; infectious fever; objections urged against the Brand method; contraindications to the bath; the warm full bath; the continuous or hammock bath; localized continuous baths; the douche; the hip bath; irrigation, lavage, enteroclysis, etc.; steam as a styptic; the internal use of water; therapeutic indications; practical application of hydrotherapy. Then follow indications for its use in certain specified diseases.

Chapter 25 is given up to the discussion and treatment of chronic rheumatism and gout; chapter 26 to the hydriatic prescription, and chapter 27 to a historic summary of the existing state of hydrotherapy in Germany, Italy, France, England and America, concluding with a plea for instruction in hydrotherapy in our colleges and hospitals. The work is timely and we fully commend it, and we are sure of its hearty reception.

The Principles and Practice of Medicine. Designed for the Use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D. Third edition, entirely revised and enlarged. New York: D. Appleton & Co. Pp. 1181.

This edition has been wholly recast and the arrangement of the sections changed. As in the former edition there are eleven sections, but the titles have been changed as follow:

1. Specific Infectious Diseases.
2. Diseases Due to Animal Parasite.
3. Intoxication and Sunstroke.
4. Constitutional Diseases.
5. Diseases of Digestive System.
6. Diseases of the Respiratory System.
7. Diseases of the Circulatory System.
8. Diseases of the Blood and Ductless Glands.
9. Diseases of the Kidneys.
10. Diseases of the Nervous System.
11. Diseases of the Muscles.

The author states that the following articles have been rewritten or are new, viz.: Vaccination, Beriberi, The Bubonic Plague, Cerebro-Spinal Fever, Pneumonia, Malta, Gonorrheal Infection, Cancer of the Stomach, The Gastric Neuroses, Enteroptosis, The Cirrhoses of the Liver, Jaundice, the Diseases of the Bile-passages, Diseases of the Pancreas, Diseases of the Thymus Gland, Diseases of the Spleen, Lymphatism, Addison's Disease, Encephalitis, Neurasthenia, Erythro-melalgia, and many shorter articles, as Hypertrophic Stenosis of the Pylorus, Ether Pneumonia, Anesthesia, Paralysis, Pneumaturia, Albumosuria, etc.

Into the sections on Typhoid Fever, Tuberculosis, Rheumatic Fever, Diabetes, Gout, Parasitic Diseases, Diseases of the Blood, Heart, Lungs and Kidneys, much new matter has been incorporated. The section on diseases of the nervous system has been rearranged and an attempt has been made to group the diseases in accordance with the modern conception of the anatomy and functions of the parts.

We have little to add to our notice of the second edition (vide JOURNAL, Nov. 30, 1895, page 966). The criticisms made hold good now, but we regarded the work as one of the ablest contributions to the literature of the subject in this country, an opinion which we still hold.

A Treatise of Diseases of the Ear, Together with a Brief Study of the Anatomy and Physiology of This Organ. By ANDREW H. BUCK, M.D. Third revised edition. Pp., 592. New York: William Wood and Company. 1898.

The present tendency to eliminate specialists is well shown by the author in his preface when he says: "During the last few years the boundary lines of the territory which was formerly supposed to belong to the aural surgeon have been materially extended. At first the larger part of the domain of rhinology was annexed, the legitimate right of such a transfer being recognized by all candid minds. Then later when it was discovered that many of the intracranial diseases of otitic origin previously looked upon as almost necessarily fatal were to a large extent curable, aural surgeons were obliged to decide promptly whether they should leave this new work entirely to the general surgeon or should assume all its grave responsibility themselves. The great majority of them accepted the trust without any hesitation, and the numerous reports of successful operations that have been published by them in recent years both abroad and in this country show that this new domain has been rightly added to the aural surgeon's former territory.

The author, who is an experienced editor as well as an active practitioner, has here accumulated an enormous mass of facts and has set them forth very skilfully; in consequence we have a text-book at once authoritative and attractive.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for Students of Pharmacy and Medicine. By W. Simon, Ph. D., M.D., Professor of Chemistry and Toxicology, College of Physicians and Surgeons, Baltimore; Professor of Chemistry in the Maryland College of Pharmacy. (Sixth) edition. In one 8vo volume of 552 pages, with engravings and 8 colored plates illustrating 64 of the most important chemic tests. Philadelphia and New York: Lea Brothers & Co. Price, Cloth, $3.00 *net*.

We had the pleasure of reviewing the fifth edition of this work in 1896, and during the three years that have elapsed many important results of scientific progress have been recorded in this volume.

The peculiar feature of the book is the plates giving the actual color and color-changes of most of the important tests in science and physiology as a permanent set and standard for comparison for the determination of important questions depending upon the test-tube.

The author has not yet adopted fully the orthography recommended by the American Association for the Advancement of Science, but the decimal system has been strictly adhered to in all weights and measures, and degrees of temperature expressed in the same system, though the corresponding degrees of the Fahrenheit scale have been mentioned.

This edition is destined to retain the favorable opinion expressed of previous ones; and it well merits its deserved popularity.

King's American Dispensary. By HARVEY W. FELTER, M.D., and JOHN URI LLOYD, PH. M. New edition. Entirely rewritten and enlarged. Two volumes royal octavo, each volume containing over 950 pp. with complete indexes. Cincinnati: The Ohio Valley Co. Volume i. Cloth $4.50 per volume, post-paid. Sheep $5.00 per volume, post-paid.

It is a pity that such an excellent and so well known a book should have been printed on such thin paper as to cheapen its appearance.

The long period of time during which the work has been

...he public has established its reputation as an exhaustive, ...ed and valuable contribution to medical literature. The ...nt edition is lacking in none of the characteristics which ...made previous editions so popular.

...troduction to Pathology and Morbid Anatomy. By T. HENRY ...REEN, M.D., F.R.C. P. Revised and enlarged by H. MONTAGUE MURRAY, M.D., F. R. C. P. New 8th American edition, thoroughly revised from the 8th English edition, by WALTER MARTIN, P.H.B., M.D. Illustrated with 216 engravings of which six are in colors. Pp. 582. Philadelphia and New York: Lea Bros. & Co., 1898.

The present edition of this book has been prepared from the ...th English edition. Many new illustrations have been ...ituted for less satisfactory ones in the last edition. The ...gement of the text has been altered and several new sec... have been inserted. The new illustrations have been ...n entirely from German sources.

A new section on some of the animal parasites has been in...d. In the section on tumors, glioma has been classed ...er benign new growths. Lymphomata have been omitted ...placed under diseases of the lymphatic glands, and the class, ...othelioma, has been introduced.

This popular text-book, by the frequent revision it has under..., is kept fully up-to-date, and notwithstanding the rapid ...nges and great advancement made in pathology it will still ...found fully abreast of the times.

... Medical Register and Directory of the Indian Empire. By JAMES R. WALLACE, M.D., F.R.C.S.P., Editor *Indian Medical Record*. Second edition, 1898. Cloth. Pp. 777. Calcutta, India: Barker Bros., 150 Dharamtala Street. 1898.

This volume's contents is arranged in seven parts, Part I ...taining: postal information; monies, measures, weights, ...; calculating tables, ready reckoner; and medical items. ...t II comprises initial nomenclature, the General Medical ...ncil of Great Britain and titular distinguished members of ... profession. In Part III the medical acts of Great Britain, ...dical education in the British Isles and in the Indian Empire ...upy 338 pages, while Part IV has to do with the Indian ...dical Association: The military medical services of India ...upy 76 pages, i.e., Part V, while Part VI contains the re...d list and Part VII a general alphabetic list of government ...cers, medical practitioners, etc.

...ctical Diagnosis. The Use of Symptoms in the Diagnosis of Disease. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Third edition, enlarged and thoroughly revised. In one octavo volume of 615 pages, with 204 engravings and 13 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. Cloth, $4.75 net.

Three editions of this book have been called for in two years, ...ich is sufficient indication of the popularity it has obtained ...this country and Great Britain. The text of this third edi...n has been carefully revised, also important new matter ...s been added, and new illustrations, taken from life, by photography, have been introduced to render the text more practically useful.

This edition is intended as a companion volume to the ...venth edition of the author's "Practical Therapeutics," ...ich is published simultaneously.

The second edition of this book was only published last year, ...twithstanding which fact it has been thoroughly revised, ...d the present edition will be found fully up to-date, and the ...culiar features which made the popularity of the former edi...ons have been retained.

...otes on Disinfectants and Disinfection. By A. G. YOUNG, M.D., Secretary of the State Board of Health of Maine. Paper, 218 pp. Augusta: Kennebec Journal Print, 1898.

This volume is a reprint from the tenth report of the board ...d contains much of value to the physician. The author has ...deavored to present a review of the experimental work which ...as been done, more particularly in recent years, for the purpose of determining the germicidal value of the various agents which have been in use, or have been suggested as disinfectants. He gives some attention to their antiseptic and deodorant properties; also to the methods and conditions under which the investigations were made. The various subjects are considered in their alphabetic order and a decided value is given to the references to the literature, in that the date of the publication is included with the volume and page reference, showing at once whether the work is or is not recent.

The Student's Histology. A Course of Normal Histology for the Students and Practitioners of Medicine. By MAURICE N. MILLER, M.D. Revised by Herbert N. Williams, M.D. Third Edition, revised. Profusely illustrated. Pp. 259. New York: William Wood and Company. 1898.

This book is divided into three parts, the first consisting wholly of the technology, the laboratory, microscope and preparation of tissues for microscopic purposes. The second part is given up to the study of the structural elements of the body — connective tissue, cartilage, bone, muscular tissue, blood. The third part relates to the organs of the body, which include the skin, the circulatory system, the lymphatic system, the spleen, the respiratory organs, teeth, glands, alimentary canal, liver, kidney, male and female generative organs, suprarenal body, nervous system, spinal cord and the brain.

The work is well printed, the illustrations are fine and we commend the book.

Text-Book of Medical and Pharmaceutical Chemistry. By ELIAS H. BARTLEY, B.S., M.D., Ph. G. Fifth edition, revised and enlarged. Pp., 788. With 86 illustrations. Philadelphia: P. Blakiston's Sons & Co. 1898.

This edition of this popular book has been thoroughly revised, the chapter on nutrition, clinical examination of milk, gastric contents, vomit and feces having been largely rewritten. The size of the book has not been increased. The reformed spelling of chemic terms has been accepted in part. The work is full and complete, and deserves a place in the library of the progressive physician. For the student there is no more solid and trustworthy guide.

Official Messages to Board of Cook County Commissioners, 1894-1898, with an introduction, 1886-1894. By D. D. HEALY, pp. 207, Chicago: J. M. W. Jones, Stationery and Printing Company, 1898.

This book is of great interest to all interested in the hospitals and charities of Cook County, and whatever may be said in criticism of the fact that the largest hospital in the State is without a medical superintendent in charge, it must be admitted that the Board of Commissioners have gone before the public in the person of their most brilliant and skillful president.

The reforms which have been instituted, so far as they have gone, were necessary and in the interest of the people and of good government.

President Healy, in retiring from office, will have the satisfaction of having conscientiously and ably performed the onerous duties of his office with fidelity, courage and ability, and we believe all will concede in general terms the recommendations of President Healy that Chicago shall be placed under one system, and that within the city limits all county and township governments be abolished.

Proceedings of the Kansas State Medical Society. Paper. Pp. 124. Topeka: A. D. Bauer. 1898.

These proceedings are for the thirty second annual meeting, held at Topeka, Kan., May 5 and 6, 1898. The volume contains a list of the incorporators of the society, officers for 1897 and for 1898, a list of the ex-presidents, of the members, and the following papers: "Mule's Operation—a Substitute for Enucleation;" "Faith Healing and its Congeners;" "Rational Treatment of Ovarian and Uterine Diseases;" "Neurasthenia;" "Club Foot or Talipes;" "Some Laboratory Notes;" "Treatment of Cancer of the Cervix Uteri by Carbid of Calcium;" "Multiple Neuritis;" "The Malarial Parasite."

Archives of the Roentgen Ray. London: The Rebman Publishing Company. W. B. Saunders, Philadelphia, American agent. 1898.

The August number is now on our table and is a very entertaining one, containing extracts from the proceedings of the Roentgen Society, many original articles, besides the usual number of skiagraph plates.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. WITTHAUS, A.M., M.D. Pp. 112. Fourth edition. New York: William Wood and Company. Price $1.00.

This work, as its name implies, is a thorough guide to the laboratory, and is arranged so conveniently and the directions given are so minute that the student will find it well-nigh indispensable.

NECROLOGY.

FRANCIS L. HAYNES, M.D., Los Angeles, Cal., died October 18. He was born in 1850, in Pennsylvania, and at the age of 20 years received the degree of Doctor of Medicine and Bachelor of Philosyphy, from the University of Pennsylvania. Immediately upon his graduation he became interested in the Philadelphia Episcopal Hospital, where he remained for eighteen months, and was afterward connected with this institution as visiting physician. He practiced continuously in Philadelphia until May, 1887, when he removed to Los Angeles on account of ill health, and was elected professor of gynecology in the Medical University of Southern California. In surgery, he was the apostle of antisepsis in Southern California. He was also interested in sociology and allied subjects, and was appointed by Governor Markham trustee of the Whittier State School, being an active member of that board when the Whittier school was at its best. For the past eighteen months, Dr. Haynes has been obliged to abandon his work, and for a long period before that he could work only intermittently.

MARIAN DECAUSSEY, M.D., Sealy, Texas, October 21 aged 56 years.——Claude Everett, M.D., Promise City, Iowa, October 20, aged 27 years.——W. C. Forster, M.D., Birmingham, Ala., October 22, aged 37 years.——Louis C. Horn, M.D., Baltimore, Md., October 23, aged 58 years.——Julius A. Johnston, M.D., Alexandria, La., October 19, aged 45 years.——E. C. Miller, M.D., an instructor in the anatomic department of Northwestern University Medical School, Chicago, October 23. ——I. J. Miller, Jr., M.D., Cincinnati, Ohio, October 23, aged 30 years.——Charles J. Milliken, M.D., Cherry Field, Me., October 16, aged 55 years.——J. H. Omo, M.D., Maysville, Ind., October 22, aged 65 years.——William T. Plant, M.D., Syracuse, N. Y., October 27, aged 62 years——H. T. Snyder, M.D., North Wales, Pa., October 22, aged 33 years.——Hezekiah Starr, M.D., Baltimore, Md., October 23, aged 82 years. ——Robert Stein, M.D., Dayton, Ohio, October 20, aged 37 years.——William N. Stowe, M.D., Wellfleet, Mass,, October 17, aged 53 years.

SOCIETY NEWS.

An International Congress of Pharmacy will be held at Paris in 1900. Professor Planchon is the chairman of the committee of organization.

Society of Washington Ophthalmologists and Otologists.—The first fall meeting of the Society, October 21, was called to order by the president, Dr. Swan M. Burnette. Dr. Newell read a paper on "Esophoria and Ciliary Spasm," and Dr. Belt one on "Inflammation of the Middle Ear."

Washington Gynecological and Obstetrical Society.—The 286th meeting was held on October 21, the election of officers resulting as follows: T. C. Smith, president; J. W. Bovee and Wm. P. Carr, vice-presidents; John Van Rensselaer, treasurer; J. T. Kelly, recording secretary; Edwin F. Morse, corresp secretary. The following committees were selected: Winter, F. L. Tompkins, F. E. Morse, business; W. N. H. B. Deale, M. F. Cuthbert, admissions; C. W. Co B. Deale, J. T. Kelly, publication; G. N. Acker, W. C. and J. T. Kelly, microscopic. The Society adjourned annual banquet, held at the Arlington. In the course evening remarks were made by the following members: Smith, toastmaster; Drs. Prentiss, Magruder, King, Bromwell, Fry, Bovee, Kelly, Stone, Van Renssalaer, S J. T. Johnson, H. L. E. Johnson, Deale, Cooke, Adams, bert, Winter, Morse, Balloch and Acker. The latte chairman of the banquet committee, and at the clo Society complimented him on the success of the evening.

Washington Medical Society.—At the meeting on Octo it was resolved that the meeting on the 2nd prox. shoul memorial meeting, in honor of Dr. N. S. Lincoln, dec Dr. Stone presented the specimen and gave the histor successful "Nephrectomy for Cystic and Fatty Degene of the Kidney." The patient was a woman, age 42 y whom he treated at the Columbia Hospital. An inter feature of the case mentioned was, that the patient gav special symptoms of the disease, and was sent to the ho tion for supposed fibroma of the uterus. An incision made over the mass, and the growth, containing several of fluid, was enucleated. Hemorrhage was severe, foll by shock, and required the intravenous injection of n salt solution. The patient is now convalescing; two large culi were found in the growth. The specimen was refer the microscopic committee for special report. Dr. C Allen read a paper on "Syringomyelia," and presented gross and microscopic specimens. He gave a very inter account of the history of the case, and went into the ge subject of etiology, pathology and symptomatology of th ease. Dr. Robert Reyburn gave his personal investigati the pollution of the Potomac water at Piedmont and Cu land, Md., mentioning the cause and character of pollu and giving an interesting account of the legal action of residents of those cities in their endeavor to correct the abu He indicated the consequent danger to the water-supp Washington City.

MISCELLANY.

Personal.—Dr. Robert Hessler, pathologist to the Ce Indiana Hospital for Insane, at Indianapolis, has resigned will spend the coming year in study in Europe.

Reorganization of the Medical Department of the Navy.—It is un stood that a bill to give a better standing to certain me officers of the navy will be introduced at the coming sessi Congress. It is certain that this corps deserves all the port and kindly recognition that a grateful country can The following is the text of the proposed bill:

AN ACT.—*Be it enacted by the Senate and House of Re sentatives of the United States in Congress assembled.*

That assistant-surgeons of the United States Navy, a from the date of their entrance into the service, rank lieutenants (junior grade) of the line.

After five years from date of appointment as assistant geons they shall be examined by a board of medical offi (now existing) and upon the successful completion of such amination, they are to be promoted to the grade of pas assistant-surgeon with the rank of lieutenants (senior grade the line.

That the higher grades are to take the rank of lieuten commander, commander, captain, and commodore respecti

That all benefits derived from existing laws relative to pay of medical officers is to continue the same, except in case of assistant and passed assistant-surgeons ranking lieutenants (junior or senior grade) provided for in this whose pay is to correspond with lieutenants (junior or se grade) of the line.

rument.—Medical men enter the army between the ages and 28 years and take the rank of first lieutenant of cav- which corresponds to a junior lieutenant of the navy. e years from date of entrance into the army, they are by promoted to the rank of captain of cavalry, which corre ds to a senior lieutenant of the navy. After this grade are promoted to surgeon with the rank of major, which is valent to lieutenant-commander of the navy.

betes Mellitus.—This is a rare affection in children, but new cases have been recently reported—Haushaler, a of 10 years, and Seiffert (*Jahrbuch f. Kind.*). The pan- was found typically atrophied in the two cases that came he necropsy, weighing twelve and twenty-five grams.

thogenesis of Epilepsy.—Prof. J. Prus of Lemberg announces, he result of extensive research and experimentation on dogs, Unverricht's "irradiation theory" of the transmission of cal epilepsy along the surface of the cortex is untenable, that the pyramidal tracts do not participate at all in the smission of cortical epilepsy. The excitation is transmitted the cortex to the medulla oblongata in cortical epilepsy motor tracts which he calls extra-pyramidal tracts, and h pass from the cortex to the medulla and the spinal cord ugh the upper part of the central brain, and cross in the ulla oblongata. These tracts not only transmit the reflexes also the voluntary stimulus for complicated movements. sserts that after anesthetizing the cortex with cocain, no ulus, no matter how powerful, would produce an epileptic ck; hence the stimulation of sensory nerves and cells is ssary to the production of an epileptic attack. He explains epileptic attack produced by irritation of the cortex as the ression of the dynamic activity of the nerve-centers, or in er words, as a complicated reflex process produced by irri- on of the sensory nerve elements of the cortex. The attack eneralized by means of the gray matter—middle brain, ulla and spinal cord. There are no special centers which exclusively the seat of epilepsy, nor any essential differences ween cortical and genuine epilepsy.—*Vienna Klin. Woch.*, tember 22.

ommunicability of Malarial Fevers.—Dr. Coronado of Havana given (*Revista de Anatom. Patolog. y Clinicas*) views ap ently contradictory to those of Koch, on the point of the tagious properties of the paludal fevers. If his observations confirmed it will need to be taken into account that there ts at least a moderate or occasional element of connection contact and formites. In the first place, he has been able eatedly to locate the plasmodium of Laveran in the excreta vomit of fever patients; and this has been done in cases ere there existed no hemorrhagic conditions of either stom- or bowels. He, with others, has found that the malarial asite can exist in waters containing decomposing vegetal tters, as well as in sea-water; in well-diluted and sterilized ths the plasmodia live, grow and develop. He has noted the coincident development of an aspergillus of a bright ber hue when the implantation is made in non-sterilized dia. This is in concordance with the observation of other estigators with regard to the specific germs of other infec- us diseases. The writer cites various clinical facts in sup- t of this statement. Among the passengers on a small coast sel running to Havana there were always some affected with larial fevers. Shortly afterward the robust sailors, who had ver suffered from malaria, were stricken with the disease. all these cases repeated examinations of the blood revealed e presence of the plasmodium. He believes that the trans- tation of numerous malaria-stricken persons served to con- t these vessels into real foci, and this can only be realized the presence of contagious disease. If the known germ of ludism became exhausted in the disease organism, as has en supposed, the facts cited above would have no rational planation. But these facts go to confirm what the writer had already proven experimentally; that the dejections of persons suffering from malaria contain live germs whose existence may be easily demonstrated. Near a place called Candelaria there is a sugar plantation where four families have lived for over twenty years without ever having suffered from paludal fevers. As a result of the reconcentration into the town of Candelaria many malarial persons of the surrounding towns and villages took refuge there. Soon afterward various members of the four families referred to in the preceding paragraph began to suffer from various types of malarial fevers whose diagnosis was confirmed in the laboratory. Now, the mode of living of these persons did not vary in the least from other times, the water which they made use of was the same. It was only necessary for some reconcentrados to come in contact with these persons to provoke paludism.—*Ohio Sanitary Bulletin*, September.

Phototherapeutics of Measles.—Chatinière describes four cases of measles commencing with sudden and violent symptoms, which he cured by simply having the windows hung with red curtains, shutting out the white rays entirely and using a photographic red lantern at night. The disease completed its evolution in twenty-four hours to four days, every symptom vanishing, and the children were up, bathed and out of doors by the sixth day. One child complained that the light was too dim for him to play, and the parents took down the curtains, followed by an immediate return of all the symptoms, reappearance of the eruption and fever, with general lassitude, all passing away in two hours after replacing the curtains.—*Presse Méd.*, September 10.

Artificial Albumin.—Professor Lilienfeld recently read a paper before the International Congress for Applied Chemistry, at Vienna, on the artificial production of albumin. The *Scientific American* for September 10 says he found it possible to prepare pepton hydrochlorid by the condensation of phenol and glycocoll with phosphoric oxychlorid. The substance thus obtained gives all the reactions of albuminoids. By previous conversion into the sulphate and decomposition of the latter, free pepton was obtained which resembled, both in its chemic and physiologic behavior, the natural pepton from albumin. The analytic data corresponded with those given by natural pepton. Dr. Lilienfeld does not claim to have made albumin by synthesis, but to have made pepton—a digestion product of albumin. Chemists will not readily believe that pepton has been really synthesized, as a proteid molecule is so complex, mobile, and of such high instability, that a change in its constitution may be readily brought about, so that until more definite tests are made, and until Dr. Lilienfeld pleases to give more of the details of his processes, which he holds secret at present, pending the issuance of a patent, they will be apt to suspend judgment. Even if artificial albumin may be produced at a moderate price, it does not necessarily follow that it will in any way tend to solve the problem of food-supply, and we are not sure as yet that the new product is physiologically identical with that produced in nature's laboratory. Pure albumin has been made on a large scale and it is not at all dear, but we are not aware it has ever occupied an important position in dietetics, or that it has been proposed as a substitute for ordinary articles of food; so that it is really absurd to think the time will come when we shall carry about a complete meal in a pill-box, and, like the artificial diamond, Professor Lilienfeld's discovery may not be valuable from a commercial point of view, certainly not while glycocoll is selling for some $75 a kilogram. The subject of chemic synthesis is an important one, and in Germany alone, in scores of laboratories, chemists are actively experimenting along this line.

Artificial Immunity to Mixed Infection.—Bernheim reports from the Vienna Hyg. Institute that he has succeeded in immunizing goats with the streptococcus and diphtheria bacterium,

until their serum confers passive immunity against this mixed infection.—*Munich Med. Woch.*, October 4.

Fish Bones in the Alimentary Canal.—Three cases have been observed recently, in Copenhagen, of a chronic intestinal affection caused by accumulations of fish bones in the intestines. The fact that a fish diet does not oftener lead to this result was explained by Faber's investigations. He found that normally active gastric juice poured over fish bones dissolves the small bones entirely and partially digests the large ones, rendering them soft and transparent. After entering the intestines they pass through unaffected by the intestinal secretions. The patients in the three cases of obstruction noted were all below average intelligence and the gastric juice was also below the normal acidity.—*Hospitalstidende*, May 25.

Operations for Extra-Uterine Pregnancy.—Seventy-nine operations are reported by M. Strauch (*Wratsch*, 18), with no deaths. Laparotomy was performed 63 times. The hematocele was opened through the vagina 9 times; twice the uninjured, two-months' pregnant tube was extirpated per vaginam, and once the entire uterus was removed to arrest excessive hemorrhage. The youngest patient was 21, the oldest 46 years old. The ovus was found uninjured in nine cases. The right tube was involved in 31 cases, the left in 39; 16 were nullipara; 9 had borne a child a year and 16 over ten years before.

Obstruction of the Murphy Button.—Tieber reports a fatal case of obstruction of the lumen of the Murphy button by a plum-stone, and comments on several other cases in which the button became corked with hard fecal lumps, concluding that the use of the button should always be preceded by rinsing out the stomach and evacuating the intestines to remove foreign bodies, while liquid food should be given for a while afterward.—*Vienna Klin. Woch.*, October 6.

An Improved Canula.—A canula for irrigating the anterior urethra, designed by Professor Mendoza of Madrid, who indorses it warmly, consists of two concentric tubes, the inner projecting 1.5 mm. beyond the outer, which has slits in its sides to allow the immediate reflux of the fluid. The irrigation is completely restricted to the anterior portion alone, and the patient can accomplish it conveniently without assistance.—*Derm. Ztschft.*, September.

Results of Treatment of Glaucoma.—Seventy-six patients in Haab's private practice have been followed, and the results of treatment shown more satisfactorily than usually supposed. In acute inflammatory and chronic glaucoma 62.5 and 60 per cent. have been permanently cured, that is there is absence of all hypertonicity, and in the 8 cases of recurrence, the trouble was dissipated with myotics and only 2 proved incurable. In 91.5 per cent. the visual acuity has been preserved as good as before the iridectomy and, in some, it has improved. There has been no hypertonicity in 77 per cent. of the cases treated by iridectomy and in 60 per cent. with sclerotomy; the latter should be considered the secondary operation, and combined with myotics if necessary. The prognosis is much less favorable in hemorrhagic glaucoma; only 20 per cent. were cured and in 40 per cent. the vision retained. The less serious the intervention in these cases the better results, consequently sclerotomy is preferable. Haab has observed a slight hypertonicity at night, disappearing during the day, which may explain the cases in which the excavation of the optic nerve continues progressively, without evidence of hypertonicity.—*Presse Méd.*, September 24.

Penetrating Power of Formaldehyde.—This has been found to be greater than usually supposed, by Professor de Rechter of Brussels, who has been testing it in an apparatus with two connecting chambers in which human and animal cadavers were exposed to the fumes of 40 per cent. formaldehyde. The cadavers could be kept thus for a number of months without showing any trace of decomposition, or it was arrested if had already commenced. When the cadavers had been posed a sufficient length of time, they could be kept a while, without evidences of putrefaction, in the ordinary In cadavers of guinea-pigs that had died from anthrax tuberculosis, and also in the lungs from tuberculous cows, organs were found completely sterile in two to six days. tests prove that the formol fumes penetrate the entire stance of the cadavers and positively kill the bacteria anthrax spores in them.—*Munich Med. Woch.*, October 4.

Precautions in Artificial Respiration.—According to the Vie correspondent of the London *Lancet*, August 27, Dr. Bro in an article published in the *Archiv. für Klinische Medi* gives an account of thirty-one experiments he has made order to prove the possibility of the gastric contents be drawn into the lungs during artificial respiration. The gr est quantity of fluid which can be aspirated by artificial re ration amounts to 1210 c.c. The difference between exp ments on the dead body and the conditions met with in living subject is that aspiration of the gastric contents dur artificial respiration is more easy in the living subject than the dead body. The methods of artificial diaphragma respiration are the sources of the greatest danger. An exp ment made by Dr. Brosch proved that even in the living s ject, when the stomach is full, its contents may be pres into the pharyngeal cavity by massage and that the card orifice offers but a trifling resistance. An elastic tube int duced into the esophagus will prevent the contents of stomach from finding their way into the air passages, and Brosch recommends that this precaution should be tak before artificial respiration is commenced.

An Important Gathering.—The Fifth International Congress Hydrology, Climatology and Geology, opened at Liège in S tember with 240 attendants, almost all from abroad. Excursi to Ostend, Spa and Aix proved interesting illustrations of t addresses on mineral waters. The necessity of a departm of public health in every country was emphasized. Felix Brussels contended that this department should include in scope, hygiene, labor and public assistance, as the only way prevent and combat victoriously the causes of poverty and physical and moral disease, to utilize economically and imp tially the resources of benevolence by centralizing them, a to guarantee the laboring classes against the accidents and firmities of labor and old age. He claimed in addition that t government should suppress distilleries altogether, stati that the revenues from alcohol had increased from 42,000,0 to 61,000,000 francs in 1896-97, showing the constant spread the evil. He made an urgent appeal for sanatoria for con lescents, observing that the State should look after its wound in the alcoholic slaughter constantly going on, and not be co tent merely to bury the dead. Ameye described his proce for sterilizing mineral waters without detracting from the medicinal value or altering the taste. They are slowly pasteu ized in the bottles to 98 degrees C. and then slowly cooled. special needle allows the escape of the impure carbonic gas an prevents breaking the bottles. The air is afterward extracte and the bottle filled with pure carbonic gas, which asphyxiate the organisms in the water deprived of air. The next Co gress will meet at Grenoble in 1901.

Not Bound to Furnish Medical Attendance.—The supreme judici court of Massachusetts holds, in the case of Davis vs. Forbes July 14, 1898, which was an action brought to recover for per sonal injuries sustained by an employe, that the defendant wa under no legal obligation to furnish the plaintiff with medica attendance, even if he had been liable for the injury. The cas of a seaman injured on shipboard, it says, is different.

Verdict for Injuries to Nervous System.—Where, in an action to recover damages for personal injuries resulting from the negli

of the defendant, the evidence tended to prove permajuries to the nervous system of the plaintiff, and espeto the nerves of her face, causing severe and protracted s of neuralgia and headaches, the court of appeals of s holds, in Atchison, Topeka & Santa Fe Railroad Comvs. Lee, Aug. 10, 1898, that the allowance of $1,000 for nent injuries was not so excessive as to indicate passion rejudice on the part of the jury against the defendant.

paration of Hypothetic Questions.—The first appellate divisthe supreme court of New York says in Preston vs. the Steamship Company of Savannah, Aug. 10, 1898, that ns to it proper that attention should be called to the conabuse in the preparation of hypothetic questions asked al experts to prove the prior physical condition of a plain- t is often most difficult for the court to determine, at the uch a question is asked, whether there is evidence to sus- finding that all the facts that the witness is asked to e did exist; and counsel should always remember that, ues the court, if a hypothetic question of this character wed, and if anything is assumed not based upon facts admitted or established by evidence, or which, if contro- d, the jury might legitimately find on weighing the evi- , an exception to the admission of such a question may be to a verdict.

Not Test by Habeas Corpus.—In the case of People ex rel. holz vs. Jonas, where the relator had been committed to ounty jail by a justice of the peace of Cook County, in lt of payment of a fine imposed for the practising of medi- without a license, the supreme court of Illinois holds that uld not by habeas corpus proceedings test the constitulity of the act to regulate the practice of medicine under h he was convicted. It says that the justice of the peace jurisdiction to hear the case and to render the judgment st the relator, which was complained of, and in doing so justice had full power and jurisdiction to decide all the tions involved in the case, including the question whether t the law under which the prosecution was instituted was titutional. The fact that the court was an inferior one, that its decision of a constitutional question might not be eat authority as a precedent, did not change the case in degree. If he chose, the relator could have appealed from judgment of the justice, and have had a trial de novo in a er court of record, in which trial he could, by presenting ositions of law, have preserved for review the constitulity of the law under which judgment was rendered. For e reasons, the writ of habeas corpus was denied.

tending Physician Alone Prohibited.—The Pennsylvania act of e 18, 1895, is in the following words: "That no person horized to practice physics or surgery shall be allowed, in civil case, to disclose any information which he acquired ttending a patient in a professional capacity, and which necessary to enable him to act in that capacity, which l tend to blacken the character of the patient, without his sent." It will be seen at once, says the supreme court of nsylvania, in Wells vs. the New England Mutual Life urance Company, July 21, 1896, that the act establishes a sonal incapacity only. It is the physician attending a ient who is prohibited from testifying to information uired while rendering professional service. He is prohibd by the words, "no person authorized," etc., "shall be wed to disclose any information," etc. No other person , being present at the time when the information was comnicated, heard the same, would be prevented by this act m testifying to the very matter in question. It is only the ysician himself who is prohibited, and that is manifestly on count of the professional relation between himself and his tient. Where a physician was examined as a witness, and deposition taken, at a time anterior to the passage of the above act, and at that time he was perfectly competent to testify to the matter in question, but subsequently, and before the trial in court, died, and the act above quoted was passed, the court holds that it was error to rule out the deposition because of the incompetency of the witness at the time of the trial if he had been living.

May Testify as to Another's Bill.—A judgment obtained for the amount of a bill for medical services was reversed by the supreme court of South Carolina, in the case of Ward vs. the Ohio River and Charleston Railway Company, July 19, 1898, because of the refusal of the circuit judge to allow an expert witness, a physician, to testify whether the bill for medical services was unreasonable and too high, notwithstanding the witness had heard the plaintiff, as a physician, testify to said charges, and had also seen the foot that was treated. The judge ruled that, as an expert, the witness could not give his opinion on the facts of the case. But the supreme court says that it is unable to distinguish between lawyers and doctors as witnesses, for a lawyer is allowed to give his opinion in court as a witness touching the value of a brother lawyer's account for services. Why may not a physician testify in the same way as to the compensation sought by a brother physician? The jury are not concluded by the opinions of either lawyers or doctors. They may still weigh the evidence (the opinions of experts) by reference to the nature of the services rendered, the time occupied in their performance and other attending circumstances, and by applying to them their own experience and knowledge of the character of such services. The court adds, these observations are directed to those cases where there is the absence of an express contract between the parties as to such charges.

N. Y. School of Clinical Medicine.—The forthcoming "Prospectus" of this school will contain, among other additions, the names of Prof. Herman Collyer in gynecology, Prof. John J. Morrissey in practice of medicine, and Associate Prof. M. Kenyon, operative surgery on the eye and ear. Louis Fischer, M.D., has been elected secretary.

Washington.

HEALTH OF THE DISTRICT.—The report of the health officer for the week ended October 22 shows the total number of deaths to have been 119, of which 62 were white and 57 colored. At the close of the week there were 134 cases of diphtheria and 105 cases of scarlet fever under treatment.

San Francisco.

NEW MEDICAL BUILDING.—October 22, the new home of the Medical Department of the University of the State of California was formally opened and dedicated. For eleven years this department of the university has been fighting to obtain from the State a more suitable building, and this event was the closing scene of the long struggle. Dr. Cole delivered the opening address, which was followed by one by Regent Dr. Rowell. His and the address of the president of the University, Prof. Kellogg, were very significant of future intentions regarding the Medical Department. It is the open and avowed desire of at least two members of the Board of Regents, to see the Medical Department take the leading place in medical education in this country. The address for the faculty of the Medical Department was by Washington Dodge, M.D. Miss Rachel Leona Ash, B.S., University of California, and a senior student of the Medical Department, then presented, in the name of the women graduates of this department, an oil painting of the late Adolph Sutro, the donor of the land on which the affiliated colleges are built. Dr. R. Beverley Cole, as the president of the Medical Department, accepted the gift of the portrait of Mr. Sutro, in the name of the faculty, and assured the donors that it would be placed to their satisfaction. After the close of the exercises the regents, faculty and invited guests were served lunch in one of the recitation rooms.

The regular college work in the new building commenced on the 24th.

Philadelphia.

DR. HUIDEKOPER RETURNS.—The hospital ship *Relief*, with 238 sick soldiers from Porto Rico has reached this city. On board was Dr. Rush Shippen Huidekoper, who has been detached from his command in Porto Rico to report before the investigating committee at Washington. In an interview with a press reporter he stated that he was still chief surgeon of the United States troops in Porto Rico, and would return to his duties there after reporting before the investigating committee in Washington.

ST. JOSEPH'S HOSPITAL.—The forty ninth annual report of this hospital has recently been issued: Bequests of the late George S. Pepper, amounting to $35,687.50 have been received, the interest only of which is available. During the year just closed a total of 1814 patients were treated in the hospital, 722 free of charge, while 30 paid a small amount, really less than the actual cost of maintenance, and 1062 made a fair compensation, the excess over net cost being devoted to the general expenses of the institution. The intimate relationship which the hospital bears to municipal needs is demonstrated by the fact that the service of the police patrol brought 459 cases of injuries and emergencies, while the ambulance service responded to 274 calls, the total number of accident cases treated in the receiving ward and house being 1515. The most notable improvement of the year is the building of a new wing at the Seventeenth Street entrance, in which has been installed a thoroughly equipped pathologic laboratory.

PEACE JUBILEE.—Although this city has been crowded by hundreds of thousands of visitors to see the Peace Jubilee parades, and although most of these people were upon about nine miles of streets, there have been but comparatively few casualties reported, and only one which has resulted fatally.

MORTALITY STATISTICS.—The total number of deaths for the week ending October 29, was 348, being a decrease of 41 over last week, and a decrease of 1 over the corresponding period of last year. Of the total number of deaths 87 were under five years of age.

LECTURE.—At a recent meeting of the Fellowship of Ethical Research, Dr. Daniel G. Brinton delivered an address on the "Diseases of Nations." He is quoted as treating the nation as an organism like the human body, and discussed such diseases as render it incapable of self-preservation. The speaker then stated "That according to history the average life of a nation was from 800 to 1000 years, its disintegration for the most part being due to moral disease, as corrupt government, or priesthood, though nations do not fail from psychologic cause." The etiology of the diseases of nations he thought due to imperfect nutrition, poisons, mental coma, and sexual aberrations, each one of which received due consideration from the speaker; reviewing the causation factors in the health and welfare of this country, Dr. Brinton believes that our mode of life, use of stimulants and drugs might have some tendency toward mental coma.

ANOTHER HOSPITAL TRAIN.—The German Hospital recently sent another train to Camp Meade, returning with thirty-six soldiers, many of whom are suffering from typhoid fever. The train was in charge of Dr. Charles Turnbull of the hospital staff, the medical department being under the charge of Dr. Carl Frese. The Board of Trustees was represented by Horace E. Smith, and the Government by Major Peyton. It is stated that the entire expense of the train was borne by John D. Lankenan, President of the Board of Trustees of the Hospital. The Government also brought back twenty-two soldiers to be distributed to the different hospitals of the city.

RESULTS OF WIDAL REACTION.—Out of twenty-five cases of fever among soldiers recently admitted to the St. Joseph's Hospital, Dr. Joseph Sailer reported that in fifteen cases a positive reaction was obtained, and all subsequently turned out to be typhoid fever, while in several in which a negative reaction was obtained they subsequently proved not [illegible] typhoid. Dr. Pease of the Bureau of Health states that [illegible] result of his examinations the positive reaction has been [illegible] sequently confirmed by a clinical history of typhoid in [illegible] cent. of the cases.

SOLDIERS TO JEFFERSON HOSPITAL.—Jefferson Hospital [illegible] one of the first institutions here to offer its facilities for [illegible] treatment of sick soldiers of the Government. Not only [illegible] but the whole graduating class volunteered their service [illegible] case of need. Appreciating the courtesy, the Government [illegible] cently dispatched a hospital train carrying twenty-four [illegible] from Camp Meade to that institution.

CONTRIBUTIONS TO NATIONAL RELIEF COMMISSION.—[illegible] George C. Thomas, through the banking firm of Drexel & [illegible] makes the following statement regarding contributions for [illegible] relief of sick soldiers: Cash previously acknowledged, [illegible] 294.35; value of supplies contributed to date, $40,36[illegible] total, $117,639.35. In addition, the "Medico Chi." report [illegible] contributions aggregating $5,229.67, and the Woman's Hos[illegible] tal, $339.20.

MUNICIPAL HOSPITAL.—One day this week fire broke out [illegible] the drying room of the laundry connected with the Munic[illegible] Hospital, in which are many patients suffering from diphthe[illegible] and scarlet fever. Some excitement was necessarily [illegible] sioned for the time being, but the flames were promptly [illegible] trolled, and the damage sustained was small.

CHANGE OF ADDRESS.

Bellamy, R., from Newport, R. I. to 210 W. 57th Street, New York [illegible]
Brock, G. S., from Bush to London, Ky.
Birdsall, W. G., from Denver, Colo. to El Paso, Texas.
Collins, B. F., from Toronto to 215 N. Phelps Street, Youngstown, [illegible]
Clements, G. E., from Crawfordsville, Ind. to 757 W. Monroe St., Chicago, Ill.
Campbell, W. H., from 330 W. Fourth Street to 330 E. Fourth St., Cincinnati, Ohio.
Druet, A. L., from Marysville to Anamosa, Iowa.
Gessner, H. B., from 731 Carondelet Street to 1450 N. Rocheblave St., New Orleans, La.
Gibbs, M. D., from Macon to Gillett, Colo.
Hoffman, A., from 174 Ashland Boul. to 6041 Vernon Ave., Chicago, Ill.
Jones, C. C., from Brock to John Sealy Hospt., Galveston, Texas.
Leach, W. D., from 1125 to 1087 Washington Boul., Chicago, Ill.
McKlveen, F. G., from 103 Byers Street to 150 So. Broadway, Denver, Colo.
Monette, G. N., from 1124 St. Charles to 1021 Baronne Street, New Orleans, La.
Reed, J. H., from Burnett's Creek to Hammond, Ind.
Rietz, P. C., from Chicago, Ill. to Evansville, Ind.
Shortridge, W. R., from Monroe, Wis. to Elgin, Ill.
Ussery, W. C., from St. Louis, Mo. to Paris, Ky.
Vedeler, C., from Locust, Iowa to 715 W. Harrison, Chicago, Ill.
Van der Veen, C., from 143 Fountain Street to 554 Grandville Ave., Grand Rapids, Mich.
Wertz, J. A., from 569 Third to 861 Trumbull Ave., Detroit, Mich.

LETTERS RECEIVED.

Amos, C. F., Lumberport, W. Va.; Allen & Hanburys, Ltd., New York, N. Y.
Blincoe, A. G., Bardstown, Ky.; Bunce, W. C., Oberlin, Ohio; Brown Iodine Chemical Co., Binghampton, N. Y.; Bashaw, Darwin, Craigsville, Va.; Bailey, S., Mt. Ayr, Iowa.
Cox, Heldman & Shortle, Chicago, Ill.
Dodsworth & Dunbar, Cincinnati, Ohio; Daniel, J. B., Atlanta, Ga.; Dale, J. F., Lemont, Pa.; Derrick, Paul E. Adv. Agency, New York, N. Y.
Eastman, J. R., Indianapolis, Ind.; Eastman, T. N., Uniontown, Pa.; Elliott, H. G., New York, N. Y.
Fernandez, J. D., Jacksonville, Fla.; Farrington, J. M., Binghamton, N. Y.; Folkes, H. M., Biloxi, Miss.; Fuller's, Chas. H. Adv. Agency, Chicago, Ill.; Foulor, I. D., East St. Louis, Mo.; Fischer, Louis, [illegible] York, N. Y.; Fischer Chemical Importing Co., (2) New York, N. Y.; French, L., (2) Davenport, Iowa.
Gabel, H. G., Aurora, Ill.; Graham, Mrs. S., Butler, Pa.; Griffith, J. Crozer, Philadelphia, Pa.; Gross, L., San Francisco, Cal.; Greenlee, R., Minnehaha, Minn.; Guthrie, J. A., Portsmouth, Va.
Hobart, J. P., Cincinnati, Ohio; Hessler, Robert, Indianapolis, Ind.; Housheer, W. V., Detroit, Mich.; Holmes, C. K., Cincinnati, Ohio; Hobaugh, C. H., Philadelphia, Pa.; Humiston, W. H., Cleveland, Ohio; Hardin, A. E., Fort Smith, Ark.; Harnsberger, S., Catlett, Va.; Hall, L., Toledo, Ohio.
Johnson, H. L. E., Washington, D. C.
Kunkler, J. E., Bloomington, Ill.
Lord, J. P., Omaha, Neb.
Mears, D. W., Ashland, Pa.; Mogk, Wm. A., Ann Arbor, Mich.; Mellson & Robbins, New York, N. Y.; Main, R. H., Barry, Ill.; McLean, Donald, Detroit, Mich.; Mueller, V. F., Milwaukee, Wis.; Merrick, M., Passaic, N. J.; Mulford Company, H. K., Philadelphia, Pa.
Newton, C. B., Stafford Springs, Conn.
Oppenheimer, S., New York, N. Y.
Parke, Davis & Co., (2) Detroit, Mich.; Porter, J. W., Litchfield, Kan.; Pitner, F. R., Clay City, Ill.; Plath, O. E., (2) Phoenix, Ariz.
Randall, B. A., Philadelphia, Pa.; Reyburn, Robert, Washington, D. C.; Russell, E. D., Clare, Iowa.
Salter, R. W., New Orleans, La.; Saunders, W. B., Philadelphia, Pa.; Sharp & Smith, Chicago, Ill.; Shadd, F. J., Washington, D. C.; Shea, J., Elmsdale, Kans.; Silver, D. R., Sidney, Ohio; Stevenson, H. E., Chicago, Ill.
Thomason, H. D., Huntsville, Ala.; Thompson, L., Troy Grove, Ill.; Trader, C. J., Council, O. T.; Tufts, A. H., Sioux Falls, S. Dak.
Van Houten & Ten Broeck, New York, N. Y.
Wade, R. J., New York, N. Y.; Wallan, M. L., New York, N. Y.; Wall, G. P., Montgomery, Ala.; Woodman, John, New York, N. Y.; Woody, E., Louisville, Ky.